

Kalam Proofs for the Existence of Allah

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The Kalam Cosmological Argument for the Existence of God

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Why does the universe exist? Why is there anything at all? Why is there something rather than nothing? These are some of the most abstract questions we can ask about the nature of the universe. Richard Taylor (1983, p. 91) writes, "It is strange indeed, for example, that a world such as ours should exist; yet few people are very often struck by this strangeness but simply take it for granted." The cosmological argument for the existence of God claims that reflecting upon the question of why the universe exists should lead us to see that it must have been created by an all-powerful, all-knowing God. The kalam argument argues for this conclusion by making the case that the universe had to have a beginning and then arguing that the beginning of the universe had to have a supernatural cause.

The cosmological argument has a long and distinguished history. Some of the world's most famous philosophers have defended their own versions of it. The Greek philosopher Aristotle (384-322 B.C.) offered the first and perhaps the most well-known statement of the argument, which is also known as 'the First-Cause Argument.' St. Thomas Aquinas (1225-1274 A.D.), whose philosophy is—by papal decree—the official philosophy of the Catholic church, offered another version. Gottfried Wilhelm Leibniz (1646-1716 A.D.), who invented calculus in Germany at the same time that Sir Isaac Newton independently invented it in Britain, defended his own unique form of the argument.

In this essay I will explain a version of the cosmological argument that most closely resembles Aristotle's and has become known as the 'kalam cosmological argument.' The word 'kalam' refers to Arabic philosophy or theology. This form of the cosmological argument was popular among Arabic philosophers during the late Middle Ages. As you read the essay below, keep referring back to the following diagram. It will help you understand the logical structure of the argument.

Figure 1

I. Did the Universe Have a Beginning?

Defenders of the kalam cosmological argument for the existence of God invite us to consider the following question: Did the universe have a beginning? There are obviously two possible answers to this question: either it did or it didn't. Theists (i.e., *people who believe in an all-powerful, all-knowing, perfectly good God*) believe that the universe had a beginning. Atheists typically believe that the universe did not have a beginning. If there was a point in time when the universe began to exist, then only a finite number of years have elapsed since this beginning. Let's call the view that the universe had a beginning the 'Finite Universe' view. Although orthodox theists often disagree about how old the universe is, they all believe it is temporally finite.

The kalam argument argues indirectly for the claim that the universe had to have a beginning by showing that the assumption that it did not have a beginning leads to absurdity. This form of argument is known as a reductio ad absurdum (lit., "reduce to the absurd"). If you want to defend some option, *A*, one way to do this is by showing that not-*A* has obviously false logical consequences. This argument form is based on the undisputed logical truth that a true statement cannot logically imply a false one. So, to support the claim that the universe had to have a beginning, the kalam cosmological argument argues that the supposition that the universe had no beginning leads to absurdity.

Here's how the argument goes: The universe exists in time. If there was no point in time when it began to exist, it must have existed forever. We'll call this the 'Infinite Universe' view. It is represented as position (1) in Figure 1. According to the Infinite Universe view, the universe has been around for an infinite number of years. We can conceive of our position in time as a point on a number line that extends infinitely into both the past and the future. For example,

..., -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, ...

Let '0' be the present moment and let '-1' be some moment in the immediate past. '-2', then, will be a moment further back in time. It doesn't matter what unit of time we assign to these numbers (e.g., seconds, minutes, years, etc.). The important thing is that each integer represents some finite unit of time. Those who claim that the universe had no beginning claim that an actual infinite amount of time has transpired in the history of the universe. There is no finite number, n , such that the universe is n years old.

In order to appreciate the significance of this claim, we need to distinguish between an 'actual infinite' and a 'potential infinite.' An actual infinite is a set or series that has an infinite number of members or steps. Think about the number of members in the set of all positive real numbers—i.e., $\{1, 2, 3, 4, 5, \dots\}$. How many members are there in this set? Infinitely many. The set of all positive real numbers, then, is an example of an actual infinite. Infinite series have a certain property that will be important in the discussion that follows: it is impossible for anyone to complete an infinite series. No one can successfully list all of the even numbers—no matter how fast they may proceed. Similarly, no one could ever walk, fly or drive an infinite distance—even if they could travel faster than the speed of light.

A potential infinite, by contrast, is a set or series that, at any given point, has a finite number of members or steps but which could always—at least in principle—be increased in size by adding additional members or steps. Here's an old philosophical puzzle: Suppose that you want to run from point A to point B . Before you could reach point B , you would have to reach the midpoint between A and B . But before you could reach the midpoint between A and B (let's call it ' C '), you would have to reach the midpoint between A and C . But before you could reach the midpoint between A and C (let's call it ' D '), you would have to reach the midpoint between A and D . But before you could reach... Well, you get the idea. This process of dividing a certain finite distance in half could, in principle, be carried out an infinite number of times. In other words, the finite distance between A and B is infinitely divisible. No matter how many times you have divided some distance in half, you can always carry out another division.

The pre-Socratic philosopher, Zeno of Elea (born 489 B.C.), used this line of thinking to claim that genuine motion is impossible. It is impossible, he claimed, to go from point A to point B because in order to do that, you would need to cross an infinite number of midpoints between A and B . But, he claimed, it is impossible to cross an infinite number of anything. Therefore, genuine motion is impossible.

The solution to Zeno's puzzle is to distinguish between a potential and an actual infinite. While it is impossible to traverse or go across an actual infinite distance, it is not impossible to traverse a finite distance that can be potentially divided an infinite number of times. You can succeed in running from point *A* to point *B*, so you can't use Zeno's paradox as an excuse for not exercising.

Let's return to the claim that the universe had no beginning. This claim implies that an actual infinite amount of time has elapsed during the history of the universe. Is this an intelligible or coherent claim? The kalam cosmological argument says "No." If the universe had no beginning, then in order for the universe to arrive at the present moment, an infinite amount of time had to pass before now. But infinite series cannot be completed. Therefore, it is impossible for an infinite amount of time to have elapsed. Just as one cannot begin from this present moment and ever reach the end of an actual infinite number of seconds from now, the universe could not have gone from an actual infinite amount of time in the past until the present moment. As J. P. Moreland (1987, p. 29) put it, "Counting to infinity through the series 1, 2, 3, ... involves the same number of steps as does counting down *from* infinity to zero through the series ..., -5, -4, -3, -2, -1, 0." Regardless of which direction one is going through the steps, it is logically impossible to complete an actual infinite number of steps.

Consequently, the kalam cosmological argument claims we can conclude that the supposition that the universe had no beginning leads to absurdity. It entails that an actual infinite temporal series has been completed in the history of the universe. But it appears to be logically impossible for an actual infinite series of any kind to be completed. Therefore, the universe must have had a beginning.

II. Was the Beginning of the Universe Caused or Uncaused?

The next step in the kalam cosmological argument is to determine whether the beginning of the universe had a caused or whether it was uncaused. The kalam argument employs the same argumentative strategy here as it did in the previous section. In order to demonstrate that the beginning of the universe had a cause, it assumes (just for the sake of argument) that it was uncaused and shows that this assumption leads to absurdity.

Think about what it would mean for the universe to have a beginning and for that beginning to have no real cause. This means that the universe just popped into existence without anything bringing its existence about. It went from not existing to existing and this transition was not caused by any existing thing or by any prior event. It just happened. Something came from nothing. Let's call this the 'Uncaused Universe' view. It is represented as position (2) in Figure 1. Surely this view is absurd. As the medieval philosophers used to say, *ex nihilo nihil fit*: nothing comes from nothing.

Sometimes people say things like, “He came out of nowhere” or “It appeared out of nothing.” But these can be nothing more than hyperboles. It is absolutely impossible for something to come from nothing. Of course, something may seem to pop into existence from what is *apparently* nothing. We may not be able to see how something came to be or what gave rise to it. The region of space in which something materialized may appear empty to the naked eye. But an object composed of matter cannot literally come into existence out of absolutely nothing. The matter that made it up had to come from somewhere. Our minds cannot accept the suggestion that things can pop into existence without any reason.

As I am using the term, ‘nothing’ cannot be used to refer to a vast emptiness or an enormous vacuum. ‘Nothing’ means absolutely, positively nothing at all. As Peter van Inwagen (1993, p. 72) writes,

To say that there is nothing is to say that there isn’t *anything*, not even a vast emptiness. If there were a vast emptiness, there would be no material objects—no atoms or elementary particles or anything made of them—but there would nevertheless be something: the vast emptiness.

Note that even an enormous vacuum would have discoverable physical properties. It would exist in a particular location and would exist for a particular amount of time. Anything that can have spatial and temporal properties is not nothing.

At this point, some readers might be tempted to think that the evidence in favor of the Big Bang theory proves that the universe did, in fact, pop into existence out of nothing. That, however, would be a mistake. The Big Bang theory does not state that first there was nothing at all in the universe and then “Bang!” the universe came to be. Rather, the theory states that all of the mass, energy, space, and time in the universe were concentrated into a single mathematical point with no dimensions and then (about 15 billion years ago, according to contemporary estimations) “Bang!” there was a massive explosion that sent all of this mass, energy, space and time hurtling away from that central mathematical point. In other words, the Big Bang theory tries to explain the current state of the universe by appealing to events involving prior states of the universe. No Big Bang theorist thinks that the “Bang!” came to be out of absolutely nothing. There had to be something there to go “Bang!”

Furthermore, there is intense speculation among physicists about how and why all of the universe came to be concentrated in that single point right before the Big Bang. No one claims that first there was nothing and then all of the sudden an enormous amount of mass, energy, space, and time popped into existence at a single point and then exploded. Scientists believe that, just as there is an explanation that accounts for the course of the universe ever since the Big Bang, there must be another explanation that accounts for what happened before the Big Bang.

The most commonly accepted non-theistic explanation of what happened before the Big Bang is known as the ‘oscillating model’ of the universe. According to this

theory, the Big Bang was preceded by a Big Crunch, which was preceded by another Big Bang, and so on. A Big Crunch is where all of the matter, energy, etc., in the universe collapses into a single mathematical point because of the gravitational attraction between all of the matter and energy. We can understand the oscillation between Big Bangs and Big Crunches by visualizing the path traced by various pieces of debris after an explosion. At first the debris travels away from the surface of the earth, but since the speed of the debris isn't enough to overcome the earth's gravitational field, eventually the various pieces slow down and then fall back to earth. The Big Crunch is kind of like that. After a previous Big Bang, scientists hypothesize that all of the mass, energy, etc., in the universe expanded away from a central point, but the rate at which the universe expanded was not sufficient to overcome the force of gravitational attraction between the various parts of the universe. As a result, the rate at which all of the galaxies in the cosmos traveled away from one another slowed and then the whole thing collapsed upon itself. Many scientists postulate an infinite series of Big Bangs and Big Crunches.

So, when theists and atheists debate about whether the universe had a beginning, they are not debating about whether the *present structure* of the universe had its beginning in the Big Bang. On that point, there is wide agreement. They are debating the larger question of whether there was an absolute starting point for the entire cosmos and, if so, what was responsible for setting all of that in motion.

Some theists might be tempted to think that the divine act of creating the universe was an instance of something coming to be out of absolutely nothing. This response, however, involves a confusion. Although orthodox theism has always maintained that God created the world *ex nihilo*—i.e., out of nothing—there wasn't *absolutely nothing* in existence before God's creation of the material universe. There was God. There may not have been any matter, energy, planets or stars. But there was nevertheless something in existence that could serve as a definite cause for the event of creation: God. By contrast, the Uncaused Universe view is the claim that there was no absolutely nothing—not even a divine being—in existence before the universe began and that the universe popped into being out of this absolute emptiness for no reason at all. That is surely an absurd suggestion.

Consequently, the universe could not have come from nothing. If the universe had a beginning, there had to be some cause responsible for that beginning.

III. What Kind of Cause Brought the Universe into Being?

A. Now let's consider what kind of cause could have brought the universe into existence. Was that cause something within the universe itself or was it something outside of the universe altogether?

According to the view I will call the 'Self-Caused Universe' view, what caused the universe to come into being was the universe itself. It wasn't created by something

other than the universe. The universe—by its own power—caused itself to go from non-existence to existence. This is surely absurd. If the universe didn't exist before the existence of the universe, there is no way it could have the power to perform an act of creation. If the universe did have the capacity to perform an act of creation, then—contrary to the suggestion under consideration—the universe was in existence at that time after all.

According to the 'Part-Caused Universe' view, what caused the universe to come into being was not the universe itself as a whole, but rather some very important part of the universe. Instead of the whole causing the whole, this view claims that a part caused the whole. However, the question the kalam cosmological argument seeks to answer is "Why does the universe *as a whole* exist?" or, alternatively, "Why is there anything at all rather than nothing?" Even if we could explain the existence of the whole in terms of some very important part (and that is doubtful, to say the least), we would still not have an explanation of why there is anything at all. We could still ask, "Why does that very important part exist?" The Self-Caused Universe view and the Part-Caused Universe view are both versions of position (3) in Figure 1.

Let ' U ' be the sum total of everything that exists in the material universe. The most that could be explained by appealing to something within the universe (let's call it ' a ') would be an explanation of everything in U except for a . But the cosmological argument is looking for an explanation of the whole ball of wax— U itself—not merely some part of it (e.g., U minus a). So, the cause for the existence of the universe cannot be found within the universe itself. Therefore, whatever brought the universe into being must lie outside the universe.

The universe is the sum total of all matter and energy existing in four-dimensional spacetime. If the cause of the universe were not part of the universe, then it would have to be something that was not composed of matter or energy and not located in four-dimensional spacetime. Many philosophers refer to everything that falls within the universe as 'the natural world' or 'nature.' If the cause of the universe lies outside the natural world, then it seems appropriate to call that cause 'supernatural.'

B. Let's call whatever it was that caused the universe to exist the ' U -cause.' If the U -cause lies outside the universe, then the U -cause will have one of the following two properties. Either the U -cause was caused to exist by something else or else it was not caused to exist by something else (i.e., it does not depend upon anything else for its existence). The kalam argument claims that the first option leads to absurdity. If the U -cause was itself caused to exist by something else, then we will want to know what caused the existence of the U -cause. Let's call the thing that caused the U -cause the ' U -cause-cause.' We can now ask the same thing about the U -cause-cause that we asked about the U -cause, viz., "Was the U -cause-cause brought into existence by something else or does it not depend upon anything else for its existence?" Suppose that the U -cause-cause depends upon something else for its existence. That means that there was some third thing—the U -cause-cause-cause—that caused the U -cause-cause. Of course, we can ask the same question all over again: "Was the U -cause-cause-cause brought into

existence by something else or does it not depend upon anything else for its existence?" And so on.

What if, for every *U*-cause (or *U*-cause-cause, etc.), it was the case that that cause was itself caused to exist by something else? This possibility is represented as position (4) in Figure 1. Position (4) implies that there has been an actual infinite series of prior causes. In other words, the universe came to existence only after an infinitely long series of causes was completed:

..., *U*-cause-cause-cause, *U*-cause-cause, *U*-cause, the universe

But an actual infinitely long series cannot be completed. This is just like counting down from negative infinity to zero: No matter how fast you counted, you could never finish. That's part of the nature of an actual infinite. So, the assumption that the existence of the universe depends upon an actual infinite series of prior causes is absurd. If a claim has been shown to lead to absurd consequences, we are justified in concluding that the opposite of that claim must be true.

So, the series of causes of the universe must be finite; it must come to an end. (Either the *U*-cause is itself uncaused or it was caused to exist by something that is uncaused. Either way, the existence of the universe ultimately requires that there be some being that does not depend for its existence upon anything else.) If the series of causes is finite, that means that the first member of the series must not depend upon anything else for its existence. It must be the sort of thing that simply exists but was not caused by something else to exist. So, we can conclude that whatever is ultimately responsible for the existence of the universe is itself uncaused. This option is represented as position (5) in Figure 1.

Let's think about the points that the kalam argument has argued for in this section: a) that the ultimate cause of the universe must be supernatural (i.e., it must lie outside the natural universe) and b) the ultimate cause of the universe must itself be uncaused. Think about how many things fit the following set of descriptions:

- *x* is powerful enough to bring the universe into existence.
- *x* is sufficiently knowledgeable to create a universe like ours with all of its natural laws and complex configurations of matter and energy.
- *x* is not made out of matter or energy and is not located in four-dimensional spacetime (i.e., *x* is not part of the natural universe).
- *x* does not depend upon anything besides itself for its existence.

Defenders of the kalam cosmological argument suggest that only one thing fits that description: God. Consequently, they conclude that the kalam argument proves the existence of God.

IV. Summary

We can summarize the steps of the kalam cosmological argument as follows:

1. Either the universe had a beginning or it did not have a beginning.
2. The claim that the universe did not have a beginning entails that an actual infinite amount of time has elapsed in the history of the universe (i.e., that an infinite temporal series has been completed).
3. But no actual infinite series of any kind can be completed.
4. So, the universe must have had a beginning.
5. Either the beginning of the universe was caused or else it was uncaused.
6. The claim that the beginning of the universe was uncaused entails that the universe popped into existence out of nothing.
7. But it is absurd to think that the universe came from absolutely nothing.
8. So, the beginning of the universe had a cause.
9. The cause of the beginning of the universe was either something within the universe itself or else something outside the universe.
10. The cause of the beginning of the whole universe cannot lie within the universe.
11. So, the cause of the universe had to be something outside the universe as a whole (i.e., it had to be a supernatural cause).
12. Either the *U*-cause (that which caused the universe) was caused to exist by something else or else the *U*-cause does not depend upon anything else for its existence.
13. We cannot suppose that the *U*-cause depends for its existence upon an infinite series of causes because an actual infinitely long series of causes cannot be completed.
14. So, either the *U*-cause was ultimately caused to exist by something else that does not depend for its existence upon anything else or else the *U*-cause does not depend upon anything else for its existence.

15. Either way, the universe ultimately depends for its existence upon something that: a) is supernatural; and b) does not depend for its existence upon anything else.
16. The only object that can fit the description in (15) is God.
17. So, the kalam cosmological argument proves the existence of God.

V. Objections and Replies

A. Are Actual Infinites Really Impossible?

The kalam cosmological argument proceeds by claiming that certain things are *impossible*—e.g., an infinitely old universe and a universe caused by an infinite series of causes. Some thinkers have challenged these claims to impossibility. They reason as follows:

Scientists employ the notion of infinity in a wide variety of equations that describe the behavior of the physical universe. Some physicists, for example, have claimed that the universe is infinitely large in size and many more have claimed that it is infinitely old. Moreover, scientists in other fields often speak of different kinds of objects or events having various kinds of infinite magnitudes. The kalam cosmological argument's claim that there cannot be any kind of actual infinite seems to fly in the face of accepted scientific practice. If the claims of theistic defenders of the kalam cosmological argument conflict with the claims of our best contemporary science, it would not be rational to choose the claims of theism over the claims of science.

Some theistic defenders of the kalam cosmological argument try to avoid this objection by distinguishing between the following claims and maintaining that the cosmological argument only requires the weaker one:

- a) Actual infinites cannot be instantiated in the real world.
- b) It is impossible to traverse an actual infinite.

According to (a), it is impossible for there to be an infinite number of objects, events, steps in a series, or members of a set; and it is impossible for any object or event to possess a property of infinite magnitude—e.g., infinite density, infinite mass or infinite speed. In short, nothing in reality can be infinite. The notion of infinity is merely a mathematical fiction. It exists only as a figment of people's imagination. It cannot exist in reality.

This position does seem to conflict with accepted scientific practice. Chemists, engineers, physicists, biologists and other scientists occasionally have reason to employ the notion of infinity in their calculations and theories. If this view is correct, all of these scientists are sorely mistaken in thinking that their theories refer to anything in reality when they employ the notion of infinity. Although this does not amount to a decisive objection to the kalam argument, it does seem to undermine some of its persuasive power. If the kalam cosmological argument presupposes that there can be no actual infinities of any kind, some scientifically-minded people are going to be unwilling to go along with it.

However, it does not seem that defenders of the kalam argument need to commit themselves to (a). All that their argument requires is (b), which is a more modest claim. (b) allows that there may very well be infinite numbers of things in reality and that things may possess properties with infinite magnitudes. One can use the notion of infinity in one's calculations *as long as one does not suppose that the actual infinite in question has been or can be traversed*. For example, consider the claim that, right before the Big Bang, all of the matter, energy and spacetime in the universe were concentrated into a point of infinite density. This claim does not presuppose that any infinite series is actually being completed or crossed. With the notion of infinite density, there is no worry about how one could ever begin at one end of the actual infinite (in this case, the density of the universe) and travel to the other end, which is infinitely far away. In the case of infinite density, that doesn't even make sense. So, there are no worries here about traversing an actual infinite. (b), then, can allow a limited use of infinities in scientific reasoning. Since (b) does not conflict with accepted scientific practice the way that (a) does, and since the kalam argument can be formulated with (b) instead of (a) in mind, the kalam cosmological argument does not force one to choose between science and theism.

B. Traversing an Actual Infinite

Some thinkers have questioned the kalam defender's claim that it is really impossible to traverse an actual infinite. For example, Alvin Plantinga (2000, p. 25) writes,

[I]t is characteristic of an infinite series that it can't be completed by starting from the beginning (or, more generally, some point only finitely far from the beginning) and adding things (events, say) one at a time (or more generally, finitely many at a time). This is true, provided the things (events) in question are added at a constant rate. If you start with the first event (or the n th, for some finite n) and add another event every second, you will never complete the series: at any subsequent time only a finite number of events will have occurred. According to current lore about the infinite, however, there is no bar of this kind to completing the infinite series in a finite time if the time taken for each event diminishes appropriately. For example, the first event takes one second to happen; the second event takes half a second; the third a quarter, the fourth an

eighth of a second, and so on. At that rate, it won't take long at all for an infinite number of events to have elapsed—only a couple of seconds.

Keith Parsons (1990, pp. 186-187) relays the following, more concrete example of what Plantinga has in mind.

Now it certainly seems intuitively plausible to say that an actual infinite cannot be crossed. However, if the mathematics of infinity has revealed anything, it is that our intuitions are not very trustworthy when dealing with such topics... [M]athematician Rudy Rucker imagines a mountain that is higher than infinity. However, says Rucker, climbers of this mountain could traverse an actual infinity of cliffs if they used a procedure he calls a "speed up": "The idea is to climb the first cliff in one hour, the next cliff in half an hour, the on after that in a quarter of an hour, and, in general, the n th cliff in $1/2^n$ hours. Since $1 + 1/2 + 1/4 + 1/8 + \dots$ sums to 2, we see that after two hours our climbers have passed infinitely many cliffs."

The speed up procedure can be diagrammed as follows:

Figure 2

As the speed-up climber cuts his climbing time in half with each new cliff, his total climbing time asymptotically approaches two hours.

There would obviously be a variety of practical and physical obstacles standing in the way of any attempt to carry out the speed up procedure. Just to mention one: as bodies approach the speed of light, their mass increases, so that if they could ever reach the speed of light, they would be infinitely massive. An infinitely massive mountain climber would have an extremely difficult time taking even a single step.

In spite of the impracticality of the speed up procedure, Plantinga and Parsons make an important point. The kalam cosmological argument does not claim that the traversal of an actual infinite is something that cannot be accomplished because there are too many physical or practical obstacles associated with it. The kalam argument claims that, even if the physical and practical obstacles could be removed, it would still be impossible to do it. Traversal of an actual infinite is logically impossible (i.e., impossible in the strongest sense of that term). It is not merely practically or physically impossible (i.e., impossible in some weaker sense of that term). If Plantinga and Parsons are correct in thinking that the speed up procedure is logically possible (even if it is practically and physically impossible), then they will have undermined an important premise of the kalam cosmological argument.

However, Plantinga's and Parson's remarks about the speed up procedure commit a logically fallacy known as 'begging the question.' This fallacy is committed when:

- a) one assumes from the beginning that one's conclusion is true;
- b) one fails to provide any independent reason(s) for believing that one's conclusion is true;
- c) one declares that one's conclusion follows from the reason(s) that one supposedly gave; and
- d) the only thing one's conclusion follows from is the prior assumption that one's conclusion is true.

If, for example, you assume that killing is always wrong and then use this assumption to argue that killing is always wrong, you will not have proven that killing is always wrong. The question is why someone should believe that killing is always wrong. Telling them that it is always wrong doesn't give them a reason to believe it is always wrong. But this is precisely what people do when they beg the question.

[illegible]

climbed a considerably greater distance than at 1.9999999999999999 hours, but since 1.9999999999999999 hours is still a finite period of time, he will only have climbed a finite number of cliffs at that point. If he is to succeed in climbing this infinitely tall mountain in two short hours (a finite period of time), at some point he must make a jump to infinite speed. No finite speed, no matter how large, will be sufficient. He must travel infinitely fast if he wishes to climb an infinitely tall mountain.

Let's reflect upon what the speed up procedure requires of our climber. Traversing an actual infinite, Plantinga and Parsons say, is possible if you can follow the speed up procedure. Following the speed up procedure means being able to travel infinitely fast. Or, since speed is distance divided by time, following the speed up procedure means being able to travel an infinite distance in a finite amount of time. Plantinga and Parsons use the example of the speed up procedure to try to prove that traversing an actual infinite is possible. However, their argument looks like this:

- i) Premise: Assume it is possible to travel an infinite distance in a finite amount of time.
- ii) Conclusion: It is possible to travel an infinite distance in a finite amount of time.

The speed up procedure example doesn't prove it is possible to traverse an actual infinite. Rather, the example assumes from the beginning that it is possible and then, on the basis of this assumption, concludes that it is possible to traverse an actual infinite. This is begging the question. Plantinga and Parsons are acting as if they have provided independent reasons for believing it is possible to traverse an actual infinite, when in fact they have not. The "argument" provided by Plantinga and Parsons is not any more convincing than Biff's "argument" in the following dialogue:

Biff: God exists.

Buffy: Why should I believe that?

Biff: Because He does.

Biff's answer to Buffy's question fails to provide the kind of reason she was seeking. The truth of a certain claim, A, cannot count as a reason for believing A. When we ask for reasons, we are looking for *independent grounds* for believing A.

Because Plantinga's and Parsons's objection begs the question, they fail to undermine the kalam argument's claim that traversing an actual infinite is impossible.

C. But Who Made God?

When faced with the cosmological argument and its claim that the universe must have been created by God, some students reply “But who created God?” If reflecting upon the existence of the universe leads us to conclude that the universe had a supernatural cause for its existence, shouldn’t reflecting upon the existence of God lead us to conclude that God, too, had a cause for His existence? Some students feel that theists are unfairly applying a double standard and exempting themselves from their own medicine.

To answer this objection, defenders of the kalam argument need only refer back to the discussion of the *U*-cause in section III.B. If God is the cause of the existence of the universe—i.e., if God is the *U*-cause—we can ask, “Was God caused to exist by something else or does God not depend upon anything else for His existence?” If God was created—i.e., if there was something that made God or caused Him to exist—then we can ask, “Was this God-cause caused to exist by something else or does the God-cause not depend upon anything else for His existence?” If this God-cause was itself created by something else, then we need to ask this same question at a higher level. There are two results of continuing this line of questioning: either a) we reach a stopping point with something that is uncreated (i.e., whose existence does not depend upon anything else); or b) we assume that God’s existence has an infinite series of causes. Option (b), however, implies that an infinitely chain of causation has actually been completed. The kalam argument has already claims that it is absurd to think an actual infinite can be traversed. Therefore, the assumption that it is always appropriate to ask, “But who made *x*?” leads to absurdity. Because this assumption leads to an absurdity, we are warranted in concluding that it is false. This means we can conclude that there are some things that are not themselves created or caused to exist. They simply exist of their own power and do not depend upon anything else for their existence. This is what theists claim is true of God. Thus, the objection under consideration does not appears to succeed.

D. An Objection from Quantum Physics

Occasionally I’ve had students object to the claim that nothing can come from nothing. They allege that quantum field theory has shown that objects really can and do just pop into existence out of nothing. According to contemporary quantum physics, virtual particles can pop into existence in what is called the ‘quantum vacuum.’ They are called ‘virtual particles’ because they cannot be observed directly, although their indirect effects can be measured (Hawking, 2001, p. 118). Because the quantum vacuum doesn’t appear to be an object—according to our ordinary notion of object—it is sometimes said that virtual particles literally come into being out of nothing. However, no matter how unusual the quantum vacuum may be, it is indeed something. As van Inwagen (1993, pp. 116-117) explains,

[The quantum vacuum] is simply the lowest energy state of the quantum field (the quantum vacuum is, therefore, a mere modification of the quantum field: the

words ‘quantum vacuum’ are a name that is applied to the quantum field when it is a certain state, just as ‘fist’ is a name that is applied to a hand when it is in a certain state), and the quantum field is a physical object with a very complicated structure, a structure that is specified by a set of equations that contain a variety of apparently arbitrary numbers.

The quantum vacuum is unstable. It has properties that do not allow all of its parts to remain in its lowest energy state for a continuous amount of time. According to van Inwagen (1993, p. 117), “When the quantum field locally and temporarily departs from its lowest energy state, particles appear (a particle and its anti-particle or a single particle that is its own anti-particle).” On a superficial level, it may seem as if these particles “come to be out of nothing,” but this is not and cannot be literally true. There is something real there—the quantum field—and the properties of this thing are studied by physicists. There are real, physical events concerning this thing that lead to the appearance of new particles; but this is a far cry from things popping into existence out of nothing. Genuine nothingness has no properties, cannot be studied by any science, and cannot give rise to anything. So, the results of quantum physics do not undermine the principle that nothing comes from nothing.

References

- Craig, William Lane. 1990. “In Defense of Rational Theism.” In J. P. Moreland & Kai Nielsen (Eds.), *Does God Exist? The Great Debate*. Nashville, TN: Thomas Nelson Publishers.
- Flew, Anthony. 1990. “The Case for God Challenged.” In J. P. Moreland & Kai Nielsen (Eds.), *Does God Exist? The Great Debate*. Nashville, TN: Thomas Nelson Publishers.
- Hawking, Stephen. 2001. *The Universe in a Nutshell*. New York: Bantam Books.
- Leslie, John. 1989. *Universes*. London: Routledge.
- Moreland, J. P. 1987. *Scaling the Secular City: A Defense of Christianity*. Grand Rapids, MI: Baker Book House.

Parsons, Keith. 1990. "Is There a Case for Christian Theism?" In J. P. Moreland & Kai Nielsen (Eds.), *Does God Exist? The Great Debate*. Nashville, TN: Thomas Nelson Publishers.

Plantinga, Alvin. 2000. *Warranted Christian Belief*. Oxford: Oxford University Press.

Ross, Hugh. 1994. "Astronomical Evidences for a Personal, Transcendent God." In J. P. Moreland (Ed.), *The Creation Hypothesis: Scientific Evidence for an Intelligent Designer*. Downers Grove, IL: InterVarsity Press.

Taylor, Richard. 1983. *Metaphysics*, 3rd edition. Englewood Cliffs, NJ: Prentice-Hall.

Van Inwagen, Peter. 1993. *Metaphysics*. Boulder, CO: Westview Press.

Van Inwagen (1993, p. 72) writes, "no one is going to show how a state of affairs in which there were no things of any sort developed into a state of affairs in which there were things."

According to William Lane Craig (1990), thermodynamic considerations make an infinite cycle of Big Bangs and Crunches problematic.

[E]ven if the universe is sufficiently dense so that it will someday recontract, it still faces a thermodynamic heat death. As the universe recontracts, it will grow hotter and hotter until all the elements are dissolved and the whole of space-time reality coalesces into a single black hole coextensive with the universe, from which it will never reemerge. Although some theorists have sought to avert this fate by postulating that the universe could bounce back from a contraction to a new expansion phase, recent studies of thermodynamics of a contracting universe confirm that reexpansion would not occur. And even if it could, other studies have shown that due to entropy increases from cycle to cycle, the oscillating universe would expand further each cycle, so that as one traces the cycles back in time, the expansion radius of the universe becomes progressively smaller until one reaches a first expansion and the beginning of the universe. In fact, astronomer Joseph Silk estimates on the basis of currently observed entropy levels that the present expansion could not have been preceded by more than 100 previous cycles. Thus, thermodynamics confirms the origin of the universe in the finite past. (Craig 1990, pp. 146-147)

Hugh Ross (1994) echoes Craig's point.

In 1983 and 1984, Marc Sher, Alan Guth and Sidney Bludman demonstrated that even if the universe did contain enough mass to halt its current expansion, the collapse would yield not a bounce but a thud. Because of the huge entropy of the universe, any ultimate collapse would lack, by many orders of magnitude, the mechanical energy needed to bring about a bounce. This huge entropy was the justification for the title of the paper by Sher and Guth, “The Impossibility of a Bouncing Universe.” (Ross 1994, p. 149)

According to John Leslie (1989, ch. 4), however, the claims of Craig and Ross are far from conclusive. Leslie claims that Stephen Hawking’s research on black holes suggests that the universe might be able to bounce back from a Big Crunch.

Some philosophers argue that it is the kalam cosmological argument that begs the question against those who believe in an eternally old universe. Plantinga (2000, p. 25) writes,

But the real problem with the [kalam cosmological] argument lies in a different direction.... To claim that it [is impossible for an infinite series of events to have occurred] is to claim just what is to be proved: *that the series in question had a beginning*. The premise tells us that if you start from some finite point in a series—that is, some point finitely far from the *beginning* of the series—and add a finite number per unit time, then you will never complete the series. Fair enough; but if the world has existed for an infinite stretch of time, then there *was* no first moment, no first event, and no beginning either to the series of moments or the series of events; more generally, at any preceding moment an infinite time would *already* have elapsed.

Anthony Flew (1990, p. 164) expresses a similar sentiment:

This argument assumes the very conclusion which it is presented to prove. For only if you set out from a temporal starting position infinitely far removed from the present would you have to “cross an actual infinite” in order to get where we are now. But to hold that the universe was without beginning and will be without end, precisely is to *deny* that the universe and time itself had a beginning (and will have an end). It is not to *assert* that it did, after all, have a beginning; but a beginning one actual infinite time ago.

Plantinga (a theist) and Flew (an atheist) assume that the kalam argument cannot be stated without begging the question. They believe the logical form of the argument is something like this:

- i) Assume there was a beginning to the universe.
- ii) Assume that this beginning point lies in the infinitely remote past.

- iii) It would be impossible to begin at this infinitely distant starting point and to travel from then to now because traversing an actual infinite is impossible.
- iv) Therefore, the assumption that the universe's beginning is infinitely far away in time is false.
- v) Therefore, the point at which the universe began to exist is finitely distant.

Plantinga and Flew claim that atheists should not grant the first assumption of the argument. From the assumption that the universe had a beginning, the defender of the kalam argument will always be able to successfully defend the view that the universe had a beginning in the finite past. The key, Plantinga and Flew claim, is to deny kalam defenders their favored starting point. If you do that, they will be unable to win the game so easily.

It seems to me, however, that Plantinga and Flew are mistaken in assuming that the kalam argument can only be stated in a question-begging way. Look back at the summary of the kalam argument given in section IV above. The first four claims in the argument read:

1. Either the universe had a beginning or it did not have a beginning.
2. The claim that the universe did not have a beginning entails that an actual infinite amount of time has elapsed in the history of the universe (i.e., that an infinite temporal series has been completed).
3. But no actual infinite series of any kind can be completed.
4. So, the universe must have had a beginning.

The third premise allows the kalam defender to grant (for the sake of argument) the atheist's assumption that the universe had no beginning at all. The kalam defender can then point out that, even granting this assumption, the atheist's view implies that an actual infinite series has been completed. The third premise simply denies that the actual infinite series in question (the infinite amount of time elapsed during the history of the universe) can be completed. This denial can be maintained without begging the question in any way against the atheist.

Sometimes these claims are accompanied by the slogan "nothingness is unstable." However, since 'unstable' expresses a property, there has to be something that possesses this property—i.e., something that is unstable. As van Inwagen (1993, p. 116) points out, instability has a temporal component: something is unstable if it has a strong tendency or disposition to change over time. But if there is absolutely nothing, then there can be nothing present to have such a temporal property.

The Fine-Tuning Design Argument:
A Scientific Argument for the Existence of God
By: [Robin Collins](#)
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I. INTRODUCTION

The Evidence of Fine-tuning(1)

Suppose we went on a mission to Mars, and found a domed structure in which everything was set up just right for life to exist. The temperature, for example, was set around 70o F and the humidity was at 50%; moreover, there was an oxygen recycling system, an energy gathering system, and a whole system for the production of food. Put simply, the domed structure appeared to be a fully functioning biosphere. What conclusion would we draw from finding this structure? Would we draw the conclusion that it just happened to form by chance? Certainly not. Instead, we would unanimously conclude that it was designed by some intelligent being. Why would we draw this conclusion? Because an intelligent designer appears to be the only plausible explanation for the existence of the structure. That is, the only alternative explanation we can think of--that the structure was formed by some natural process--seems extremely unlikely. Of course, it is possible that, for example, through some volcanic eruption various metals and other compounds could have formed, and then separated out in just the right way to produce the "biosphere," but such a scenario strikes us as extraordinarily unlikely, thus making this alternative explanation unbelievable.

The universe is analogous to such a "biosphere," according to recent findings in physics. Almost everything about the basic structure of the universe--for example, the fundamental laws and parameters of physics and the initial distribution of matter and energy--is balanced on a razor's edge for life to occur. As the eminent Princeton physicist Freeman Dyson notes, "There are many . . . lucky accidents in physics. Without such accidents, water could not exist as liquid, chains of carbon atoms could not form complex organic molecules, and hydrogen atoms could not form breakable bridges between molecules" (p. 251)--in short, life as we know it would be impossible.

Scientists call this extraordinary balancing of the parameters of physics and the initial conditions of the universe the "fine-tuning of the cosmos." It has been extensively discussed by philosophers, theologians, and scientists, especially since the early 1970s, with hundreds of articles and dozens of books written on the topic. Today, it is widely regarded as offering by far the most persuasive current argument for the existence of God. For example, theoretical physicist and popular science writer Paul Davies--whose early writings were not particularly sympathetic to theism--claims that with regard to basic structure of the universe, "the impression of design is overwhelming" (Davies, 1988, p. 203). Similarly, in response to the life-permitting fine-tuning of the nuclear

resonances responsible for the oxygen and carbon synthesis in stars, the famous astrophysicist Sir Fred Hoyle declares that

I do not believe that any scientists who examined the evidence would fail to draw the inference that the laws of nuclear physics have been deliberately designed with regard to the consequences they produce inside stars. If this is so, then my apparently random quirks have become part of a deep-laid scheme. If not then we are back again at a monstrous sequence of accidents. [Fred Hoyle, in *Religion and the Scientists*, 1959; quoted in Barrow and Tipler, p. 22]

A few examples of this fine-tuning are listed below:

1. If the initial explosion of the big bang had differed in strength by as little as 1 part in 1060, the universe would have either quickly collapsed back on itself, or expanded too rapidly for stars to form. In either case, life would be impossible. [See Davies, 1982, pp. 90-91. (As John Jefferson Davis points out (p. 140), an accuracy of one part in 10^{60} can be compared to firing a bullet at a one-inch target on the other side of the observable universe, twenty billion light years away, and hitting the target.)]
2. Calculations indicate that if the strong nuclear force, the force that binds protons and neutrons together in an atom, had been stronger or weaker by as little as 5%, life would be impossible. (Leslie, 1989, pp. 4, 35; Barrow and Tipler, p. 322.)
3. Calculations by Brandon Carter show that if gravity had been stronger or weaker by 1 part in 1040, then life-sustaining stars like the sun could not exist. This would most likely make life impossible. (Davies, 1984, p. 242.)
4. If the neutron were not about 1.001 times the mass of the proton, all protons would have decayed into neutrons or all neutrons would have decayed into protons, and thus life would not be possible. (Leslie, 1989, pp. 39-40)
5. If the electromagnetic force were slightly stronger or weaker, life would be impossible, for a variety of different reasons. (Leslie, 1988, p. 299.)

Imaginatively, one could think of each instance of fine-tuning as a radio dial: unless all the dials are set exactly right, life would be impossible. Or, one could think of the initial conditions of the universe and the fundamental parameters of physics as a dart board that fills the whole galaxy, and the conditions necessary for life to exist as a small one-foot wide target: unless the dart hits the target, life would be impossible. The fact that the dials are perfectly set, or the dart has hit the target, strongly suggests that someone set the dials or aimed the dart, for it seems enormously improbable that such a coincidence could have happened by chance.

Although individual calculations of fine-tuning are only approximate and could be in error, the fact that the universe is fine-tuned for life is almost beyond question because of the large number of independent instances of apparent fine-tuning. As philosopher John

Leslie has pointed out, "clues heaped upon clues can constitute weighty evidence despite doubts about each element in the pile" (1988, p. 300). What is controversial, however, is the degree to which the fine-tuning provides evidence for the existence of God. As impressive as the argument from fine-tuning seems to be, atheists have raised several significant objections to it. Consequently, those who are aware of these objections, or have thought of them on their own, often will find the argument unconvincing. This is not only true of atheists, but also many theists. I have known, for instance, both a committed Christian Hollywood film-maker and a committed Christian biochemist who remained unconvinced because of certain atheist objections to the argument. This is unfortunate, particularly since the fine-tuning argument is probably the most powerful current argument for the existence of God. My goal in this chapter, therefore, is to make the fine-tuning argument as strong as possible. This will involve developing the argument in as objective and rigorous way as we can, and then answering the major atheist objections to it. Before launching into this, however, we will need to make a preliminary distinction.

A Preliminary Distinction

To rigorously develop the fine-tuning argument, we will find it useful to distinguish between what I shall call the atheistic single-universe hypothesis and the atheistic many-universes hypothesis. According to the atheistic single-universe hypothesis, there is only one universe, and it is ultimately an inexplicable, "brute" fact that the universe exists and is fine-tuned. Many atheists, however, advocate another hypothesis, one which attempts to explain how the seemingly improbable fine-tuning of the universe could be the result of chance. This hypothesis is known as the atheistic many-worlds hypothesis, or the atheistic many-universes hypothesis. According to this hypothesis, there exists what could be imaginatively thought of as a "universe generator" that produces a very large or infinite number of universes, with each universe having a randomly selected set of initial conditions and values for the parameters of physics. Because this generator produces so many-universes, just by chance it will eventually produce one that is fine-tuned for intelligent life to occur.

Plan of the Chapter

Below, we will use this distinction between the atheistic single-universe hypothesis and the atheistic many-universes hypothesis to present two separate arguments for theism based on the fine-tuning: one which argues that the fine-tuning provides strong reasons to prefer theism over the atheistic single-universe hypothesis and one which argues that we should prefer theism over the atheistic many-universes hypothesis. We will develop the argument against the atheistic single-universe hypothesis in Section II below, referring to it as the core argument. Then we will answer objections to this core argument in section III, and finally develop the argument for preferring theism to the atheistic many-universes hypothesis in section IV. An appendix is also included that further elaborates and justifies one of the key premises of the core argument presented in section III.

II. CORE ARGUMENT RIGOROUSLY FORMULATED

General Principle of Reasoning Used

The Principle Explained

We will formulate the fine-tuning argument against the atheistic single-universe hypothesis in terms of what I will call the prime principle of confirmation. The prime principle of confirmation is a general principle of reasoning which tells us when some observation counts as evidence in favor of one hypothesis over another. Simply put, the principle says that whenever we are considering two competing hypotheses, an observation counts as evidence in favor of the hypothesis under which the observation has the highest probability (or is the least improbable). (Or, put slightly differently, the principle says that whenever we are considering two competing hypotheses, H1 and H2, an observation, O, counts as evidence in favor of H1 over H2 if O is more probable under H1 than it is under H2.) Moreover, the degree to which the evidence counts in favor of one hypothesis over another is proportional to the degree to which the observation is more probable under the one hypothesis than the other.⁽²⁾ For example, the fine-tuning is much, much more probable under theism than under the atheistic single-universe hypothesis, so it counts as strong evidence for theism over this atheistic hypothesis. In the next major subsection, we will present a more formal and elaborated rendition of the fine-tuning argument in terms of the prime principle. First, however, let's look at a couple of illustrations of the principle and then present some support for it.

Additional Illustrations of the Principle

For our first illustration, suppose that I went hiking in the mountains, and found underneath a certain cliff a group of rocks arranged in a formation that clearly formed the pattern "Welcome to the mountains Robin Collins." One hypothesis is that, by chance, the rocks just happened to be arranged in that pattern--ultimately, perhaps, because of certain initial conditions of the universe. Suppose the only viable alternative hypothesis is that my brother, who was in the mountains before me, arranged the rocks in this way. Most of us would immediately take the arrangements of rocks to be strong evidence in favor of the "brother" hypothesis over the "chance" hypothesis. Why? Because it strikes us as extremely improbable that the rocks would be arranged that way by chance, but not improbable at all that my brother would place them in that configuration. Thus, by the prime principle of confirmation we would conclude that the arrangement of rocks strongly supports the "brother" hypothesis over the chance hypothesis.

Or consider another case, that of finding the defendant's fingerprints on the murder weapon. Normally, we would take such a finding as strong evidence that the defendant was guilty. Why? Because we judge that it would be unlikely for these fingerprints to be on the murder weapon if the defendant was innocent, but not unlikely if the defendant was guilty. That is, we would go through the same sort of reasoning as in the above case.

Support for the Principle

Several things can be said in favor of the prime principle of confirmation. First, many

philosophers think that this principle can be derived from what is known as the probability calculus, the set of mathematical rules that are typically assumed to govern probability. Second, there does not appear to be any case of recognizably good reasoning that violates this principle. Finally, the principle appears to have a wide range of applicability, undergirding much of our reasoning in science and everyday life, as the examples above illustrate. Indeed, some have even claimed that a slightly more general version of this principle undergirds all scientific reasoning. Because of all these reasons in favor of the principle, we can be very confident in it.

Further Development of Argument

To further develop the core version of the fine-tuning argument, we will summarize the argument by explicitly listing its two premises and its conclusion:

Premise 1. The existence of the fine-tuning is not improbable under theism.

Premise 2. The existence of the fine-tuning is very improbable under the atheistic single-universe hypothesis.

Conclusion: From premises (1) and (2) and the prime principle of confirmation, it follows that the fine-tuning data provides strong evidence to favor of the design hypothesis over the atheistic single-universe hypothesis.

At this point, we should pause to note two features of this argument. First, the argument does not say that the fine-tuning evidence proves that the universe was designed, or even that it is likely that the universe was designed. In order to justify these sorts of claims, we would have to look at the full range of evidence both for and against the design hypothesis, something we are not doing in this chapter. Rather, the argument merely concludes that the fine-tuning strongly supports theism over the atheistic single-universe hypothesis.

In this way, the evidence of fine-tuning argument is much like fingerprints found on the gun: although they can provide strong evidence that the defendant committed the murder, one could not conclude merely from them alone that the defendant is guilty; one would also have to look at all the other evidence offered. Perhaps, for instance, ten reliable witnesses claimed to see the defendant at a party at the time of the shooting. In this case, the fingerprints would still count as significant evidence of guilt, but this evidence would be counterbalanced by the testimony of the witnesses. Similarly the evidence of fine-tuning strongly supports theism over the atheistic single-universe hypothesis, though it does not itself show that everything considered theism is the most plausible explanation of the world. Nonetheless, as I argue in the conclusion of this chapter, the evidence of fine-tuning provides a much stronger and more objective argument for theism (over the atheistic single-universe hypothesis) than the strongest atheistic argument does against theism.

The second feature of the argument we should note is that, given the truth of the prime

principle of confirmation, the conclusion of the argument follows from the premises. Specifically, if the premises of the argument are true, then we are guaranteed that the conclusion is true: that is, the argument is what philosophers call valid. Thus, insofar as we can show that the premises of the argument are true, we will have shown that the conclusion is true. Our next task, therefore, is to attempt to show that the premises are true, or at least that we have strong reasons to believe them.

Support for the Premises

Support for Premise (1).

Premise (1) is easy to support and fairly uncontroversial. The argument in support of it can be simply stated as follows: since God is an all good being, and it is good for intelligent, conscious beings to exist, it not surprising or improbable that God would create a world that could support intelligent life. Thus, the fine-tuning is not improbable under theism, as premise (1) asserts.

Support for Premise (2)

Upon looking at the data, many people find it very obvious that the fine-tuning is highly improbable under the atheistic single-universe hypothesis. And it is easy to see why when we think of the fine-tuning in terms of the analogies offered earlier. In the dart-board analogy, for example, the initial conditions of the universe and the fundamental parameters of physics are thought of as a dart-board that fills the whole galaxy, and the conditions necessary for life to exist as a small one-foot wide target. Accordingly, from this analogy it seems obvious that it would be highly improbable for the fine-tuning to occur under the atheistic single-universe hypothesis--that is, for the dart to hit the board by chance.

Typically, advocates the fine-tuning argument are satisfied with resting the justification of premise (2), or something like it, on this sort of analogy. Many atheists and theists, however, question the legitimacy of this sort of analogy, and thus find the argument unconvincing. For these people, the Appendix to this chapter offers a rigorous and objective justification of premise (2) using standard principles of probabilistic reasoning. Among other things, in the process of rigorously justifying premise (2), we effectively answer the common objection to the fine-tuning argument that because the universe is a unique, unrepeatable event, we cannot meaningfully assign a probability to its being fine-tuned.

III. SOME OBJECTIONS TO CORE VERSION

As powerful as the core version of the fine-tuning argument is, several major objections have been raised to it by both atheists and theists. In this section, we will consider these objections in turn.

Objection 1: More Fundamental Law Objection

One criticism of the fine-tuning argument is that, as far as we know, there could be a more fundamental law under which the parameters of physics must have the values they do. Thus, given such a law, it is not improbable that the known parameters of physics fall within the life-permitting range.

Besides being entirely speculative, the problem with postulating such a law is that it simply moves the improbability of the fine-tuning up one level, to that of the postulated physical law itself. Under this hypothesis, what is improbable is that all the conceivable fundamental physical laws there could be, the universe just happens to have the one that constrains the parameters of physics in a life-permitting way. Thus, trying to explain the fine-tuning by postulating this sort of fundamental law is like trying to explain why the pattern of rocks below a cliff spell "Welcome to the mountains Robin Collins" by postulating that an earthquake occurred and that all the rocks on the cliff face were arranged in just the right configuration to fall into the pattern in question. Clearly this explanation merely transfers the improbability up one level, since now it seems enormously improbable that of all the possible configurations the rocks could be in on the cliff face, they are in the one which results in the pattern "Welcome to the mountains Robin Collins."

A similar sort of response can be given to the claim that the fine-tuning is not improbable because it might be logically necessary for the parameters of physics to have life-permitting values. That is, according to this claim, the parameters of physics must have life-permitting values in the same way $2 + 2$ must equal 4, or the interior angles of a triangle must add up to 180 degrees in Euclidian geometry. Like the "more fundamental law" proposal above, however, this postulate simply transfers the improbability up one level: of all the laws and parameters of physics that conceivably could have been logically necessary, it seems highly improbable that it would be those that are life-permitting.(3)

Objection 2: Other Forms of Life Objection

Another objection people commonly raise to the fine-tuning argument is that as far as we know, other forms of life could exist even if the parameters of physics were different. So, it is claimed, the fine-tuning argument ends up presupposing that all forms of intelligent life must be like us. The answer to this objection is that most cases of fine-tuning do not make this presupposition. Consider, for instance, the case of the fine-tuning of the strong nuclear force. If it were slightly larger or smaller, no atoms could exist other than hydrogen. Contrary to what one might see on Star Trek, an intelligent life form cannot be composed merely of hydrogen gas: there is simply not enough stable complexity. So, in general the fine-tuning argument merely presupposes that intelligent life requires some degree of stable, reproducible organized complexity. This is certainly a very reasonable assumption.

Objection 3. Anthropic Principle Objection

According to the weak version of so-called anthropic principle, if the laws of nature were not fine-tuned, we would not be here to comment on the fact. Some have argued, therefore, that the fine-tuning is not really improbable or surprising at all under atheism, but simply follows from the fact that we exist. The response to this objection is to simply restate the argument in terms of our existence: our existence as embodied, intelligent beings is extremely unlikely under the atheistic single-universe hypothesis (since our existence requires fine-tuning), but not improbable under theism. Then, we simply apply the prime principle of confirmation to draw the conclusion that our existence strongly confirms theism over the atheistic single-universe hypothesis.

To further illustrate this response, consider the following "firing-squad" analogy. As John Leslie (1988, p. 304) points out, if fifty sharp shooters all miss me, the response "if they had not missed me I wouldn't be here to consider the fact" is not adequate. Instead, I would naturally conclude that there was some reason why they all missed, such as that they never really intended to kill me. Why would I conclude this? Because my continued existence would be very improbable under the hypothesis that they missed me by chance, but not improbable under the hypothesis that there was some reason why they missed me. Thus, by the prime principle of confirmation, my continued existence strongly confirms the latter hypothesis.

Objection 4: The "Who Designed God?" Objection

Perhaps the most common objection that atheists raise to the argument from design, of which the fine-tuning argument is one instance, is that postulating the existence of God does not solve the problem of design, but merely transfers it up one level. Atheist George Smith, for example, claims that

If the universe is wonderfully designed, surely God is even more wonderfully designed. He must, therefore, have had a designer even more wonderful than He is. If God did not require a designer, then there is no reason why such a relatively less wonderful thing as the universe needed one. (1980, p. 56.)

Or, as philosopher J. J. C. Smart states the objection:

If we postulate God in addition to the created universe we increase the complexity of our hypothesis. We have all the complexity of the universe itself, and we have in addition the at least equal complexity of God. (The designer of an artifact must be at least as complex as the designed artifact) . . . If the theist can show the atheist that postulating God actually reduces the complexity of one's total world view, then the atheist should be a theist. (pp. 275-276; italics mine)

The first response to the above atheist objection is to point out that the atheist claim that the designer of an artifact must be as complex as the artifact designed is certainly not obvious. But I do believe that their claim has some intuitive plausibility: for example, in the world we experience, organized complexity seems only to be produced by systems that already possess it, such as the human brain/mind, a factory, or an organisms'

biological parent.

The second, and better, response is to point out that, at most, the atheist objection only works against a version of the design argument that claims that all organized complexity needs an explanation, and that God is the best explanation of the organized complexity found in the world. The version of the argument I presented against the atheistic single-universe hypothesis, however, only required that the fine-tuning be more probable under theism than under the atheistic single-universe hypothesis. But this requirement is still met even if God exhibits tremendous internal complexity, far exceeding that of the universe. Thus, even if we were to grant the atheist assumption that the designer of an artifact must be as complex as the artifact, the fine-tuning would still give us strong reasons to prefer theism over the atheistic single-universe hypothesis.

To illustrate, consider the example of the "biosphere" on Mars presented at the beginning of this paper. As mentioned above, the existence of the biosphere would be much more probable under the hypothesis that intelligent life once visited Mars than under the chance hypothesis. Thus, by the prime principle of confirmation, the existence of such a "biosphere" would constitute strong evidence that intelligent, extraterrestrial life had once been on Mars, even though this alien life would most likely have to be much more complex than the "biosphere" itself.

The final response theists can give to this objection is to show that a supermind such as God would not require a high degree of unexplained organized complexity to create the universe. Although I have presented this response elsewhere (unpublished manuscript), presenting it here is beyond the scope of this chapter.

IV. THE MANY-UNIVERSES HYPOTHESIS

The Many-Universes Hypothesis Explained

In response to theistic explanation of fine-tuning of the cosmos, many atheists have offered an alternative explanation, what I will call the atheistic many-universes hypothesis. (In the literature it is more commonly referred to as the Many Worlds hypothesis, though I believe this name is somewhat misleading.) According to this hypothesis, there are a very large--perhaps infinite--number of universes, with the fundamental parameters of physics varying from universe to universe.⁽⁴⁾ Of course, in the vast majority of these universes the parameters of physics would not have life-permitting values. Nonetheless, in a small proportion of universes they would, and consequently it is no longer improbable that universes such as ours exist that are fine-tuned for life to occur.

Advocates of this hypothesis offer various types of models for where these universes came from. We will present what are probably the two most popular and plausible, the so-called vacuum fluctuation models and the oscillating Big Bang models. According to the vacuum fluctuation models, our universe, along with these other universes, were generated by quantum fluctuations in a pre-existing superspace (e.g., see Quentin Smith,

1986, p. 82). Imaginatively, one can think of this pre-existing superspace as a infinitely extending ocean full of soap, and each universe generated out of this superspace as a soap-bubble which spontaneously forms on the ocean.

The other model, the oscillating Big Bang model, is a version of the Big Bang theory. According to the Big Bang theory, the universe came into existence in an "explosion" (that is, a "bang") somewhere between 10 and 15 billion years ago. According to the oscillating Big Bang theory, our universe will eventually collapse back in on itself (what is called the "Big Crunch") and then from that "Big Crunch" will arise another "Big Bang", forming a new universe, which will in turn itself collapse, and so on. According to those who use this model to attempt explain the fine-tuning, during every cycle, the parameters of physics and the initial conditions of the universe are reset at random. Since this process of collapse, explosion, collapse, and explosion has been going on for all eternity, eventually a fine-tuned universe will occur, indeed infinitely many of them.

In the next section, we will list several reasons for rejecting atheistic many-universes hypothesis.

Reasons for Rejecting the Many-universes Hypothesis

First Reason

The first reason for rejecting the atheistic many-universes hypothesis, and preferring the theistic hypothesis, is the following general rule: everything else being equal, we should prefer hypotheses for which we have independent evidence or that are natural extrapolations from what we already know. Let's first illustrate and support this principle, and then apply it to the case of the fine-tuning.

Most of us take the existence of dinosaur bones to count as very strong evidence that dinosaurs existed in the past. But suppose a dinosaur skeptic claimed that she could explain the bones by postulating a "dinosaur-bone-producing-field" that simply materialized the bones out of thin air. Moreover, suppose further that, to avoid objections such as that there are no known physical laws that would allow for such a mechanism, the dinosaur skeptic simply postulated that we have not yet discovered these laws or detected these fields. Surely, none of us would let this skeptical hypothesis deter us from inferring to the existence of dinosaurs. Why? Because although no one has directly observed dinosaurs, we do have experience of other animals leaving behind fossilized remains, and thus the dinosaur explanation is a natural extrapolation from our common experience. In contrast, to explain the dinosaur bones, the dinosaur skeptic has invented a set of physical laws, and a set of mechanisms that are not a natural extrapolation from anything we know or experience.

In the case of the fine-tuning, we already know that minds often produce fine-tuned devices, such as Swiss watches. Postulating God--a supermind--as the explanation of the fine-tuning, therefore, is a natural extrapolation from of what we already observe minds to do. In contrast, it is difficult to see how the atheistic many-universes hypothesis could

be considered a natural extrapolation from what we observe. Moreover, unlike the atheistic many-universes hypothesis, we have some experiential evidence for the existence of God, namely religious experience. Thus, by the above principle, we should prefer the theistic explanation of the fine-tuning over the atheistic many-universes explanation, everything else being equal.

Second Reason

A second reason for rejecting the atheistic many-universe hypothesis is that the "many-universes generator" seems like it would need to be designed. For instance, in all current worked-out proposals for what this "universe generator" could be--such as the oscillating big bang and the vacuum fluctuation models explained above--the "generator" itself is governed by a complex set of physical laws that allow it to produce the universes. It stands to reason, therefore, that if these laws were slightly different the generator probably would not be able to produce any universes that could sustain life. After all, even my bread machine has to be made just right in order to work properly, and it only produces loaves of bread, not universes! Or consider a device as simple as a mouse trap: it requires that all the parts, such as the spring and hammer, be arranged just right in order to function. It is doubtful, therefore, whether the atheistic many-universe theory can entirely eliminate the problem of design the atheist faces; rather, at least to some extent, it seems simply to move the problem of design up one level. (5)

Third Reason

A third reason for rejecting the atheistic many-universes hypothesis is that the universe generator must not only select the parameters of physics at random, but must actually randomly create or select the very laws of physics themselves. This makes this hypothesis seem even more far-fetched since it is difficult to see what possible physical mechanism could select or create laws.

The reason the "many-universes generator" must randomly select the laws of physics is that, just as the right values for the parameters of physics are needed for life to occur, the right set of laws is also needed. If, for instance, certain laws of physics were missing, life would be impossible. For example, without the law of inertia, which guarantees that particles do not shoot off at high speeds, life would probably not be possible (Leslie, *Universes*, p. 59). Another example is the law of gravity: if masses did not attract each other, there would be no planets or stars, and once again it seems that life would be impossible. Yet another example is the Pauli Exclusion Principle, the principle of quantum mechanics that says that no two fermions--such as electrons or protons--can share the same quantum state. As prominent Princeton physicist Freeman Dyson points out [*Disturbing the Universe*, p. 251], without this principle all electrons would collapse into the nucleus and thus atoms would be impossible.

Fourth Reason

The fourth reason for rejecting the atheistic many-universes hypothesis is that it cannot

explain other features of the universe that seem to exhibit apparent design, whereas theism can. For example, many physicists, such as Albert Einstein, have observed that the basic laws of physics exhibit an extraordinary degree of beauty, elegance, harmony, and ingenuity. Nobel Prize winning physicist Steven Weinberg, for instance, devotes a whole chapter of his book *Dreams of a Final Theory* (Chapter 6, "Beautiful Theories") explaining how the criteria of beauty and elegance are commonly used to guide physicists in formulating the right laws. Indeed, one of most prominent theoretical physicists of this century, Paul Dirac, went so far as to claim that "it is more important to have beauty in one's equations than to have them fit experiment" (1963, p. ??).

Now such beauty, elegance, and ingenuity make sense if the universe was designed by God. Under the atheistic many-universes hypothesis, however, there is no reason to expect the fundamental laws to be elegant or beautiful. As theoretical physicist Paul Davies writes, "If nature is so 'clever' as to exploit mechanisms that amaze us with their ingenuity, is that not persuasive evidence for the existence of intelligent design behind the universe? If the world's finest minds can unravel only with difficulty the deeper workings of nature, how could it be supposed that those workings are merely a mindless accident, a product of blind chance?" (*Superforce*, pp. 235-36.)

Final Reason

This brings us to the final reason for rejecting the atheistic many-universes hypothesis, which may be the most difficult to grasp: namely, neither the atheistic many-universes hypothesis (nor the atheistic single-universe hypothesis) can at present adequately account for the improbable initial arrangement of matter in the universe required by the second law of thermodynamics. To see this, note that according to the second law of thermodynamics, the entropy of the universe is constantly increasing. The standard way of understanding this entropy increase is to say that the universe is going from a state of order to disorder. We observe this entropy increase all the time around us: things, such as a child's bedroom, that start out highly organized tend to "decay" and become disorganized unless something or someone intervenes to stop it.

Now, for purposes of illustration, we could think of the universe as a scrabble-board that initially starts out in a highly ordered state in which all the letters are arranged to form words, but which keeps getting randomly shaken. Slowly, the board, like the universe, moves from a state of order to disorder. The problem for the atheist is to explain how the universe could have started out in a highly ordered state, since it is extraordinarily improbable for such states to occur by chance.⁽⁶⁾ If, for example, one were to dump a bunch of letters at random on a scrabble-board, it would be very unlikely for most of them to form into words. At best, we would expect groups of letters to form into words in a few places on the board.

Now our question is, Could the atheistic many-universes hypothesis explain the high degree of initial order of our universe by claiming that given enough universes, eventually one will arise that is ordered and in which intelligent life occurs, and so it is no surprise that we find ourselves in an ordered universe? The problem with this explanation

is that it is overwhelmingly more likely for local patches of order to form in one or two places than for the whole universe to be ordered, just as it is overwhelmingly more likely for a few words on the scrabble-board randomly to form words than for all the letters throughout the board randomly to form words. Thus, the overwhelming majority of universes in which intelligent life occurs will be ones in which the intelligent life will be surrounded by a small patch of order necessary for its existence, but in which the rest of the universe is disordered. Consequently, even under the atheistic many-universes hypothesis, it would still be enormously improbable for intelligent beings to find themselves in a universe such as ours which is highly ordered throughout. (See Sklar, chapter 8 for a review of the non-theistic explanations for the ordered arrangement of the universe and the severe difficulties they face.)

Conclusion

Even though the above criticisms do not definitively refute the atheistic many-universes hypothesis, they do show that it has some severe disadvantages relative to theism. This means that if atheists adopt the atheistic many-universes hypothesis to defend their position, then atheism has become much less plausible than it used to be. Modifying a turn of phrase coined by philosopher Fred Dretske: these are inflationary times, and the cost of atheism has just gone up.

V. OVERALL CONCLUSION

In the above sections we showed we have good, objective reasons for claiming that the fine-tuning provides strong evidence for theism. We first presented an argument for thinking that the fine-tuning provides strong evidence for preferring theism over the atheistic single-universe hypothesis, and then presented a variety of different reasons for rejecting the atheistic many-universes hypothesis as an explanation of the fine-tuning. In order to help one appreciate the strength of the arguments we presented, I would like to end by comparing the strength of the core version of the argument from the fine-tuning to what is widely regarded as the strongest atheist argument against theism, the argument from evil. (7)

Typically, the atheist argument against God based on evil takes a similar form to the core version of the fine-tuning argument. Essentially, the atheist argues that the existence of the kind of evils we find in the world is very improbable under theism, but not improbable under atheism. Thus, by the prime principle of confirmation, they conclude that the existence of evil provides strong reasons for preferring atheism over theism.

What makes this argument weak in comparison to the core version of the fine-tuning argument is that, unlike in the case of the fine-tuning, the atheist does not have a significant objective basis for claiming that the existence of the kinds of evil we find in the world is highly improbable under theism. In fact, their judgment that it is improbable seems largely to rest on a mistake in reasoning. To see this, note that in order to show that it is improbable, atheists would have to show that it is unlikely that the types of evils we find in the world are necessary for any morally good, greater purpose, since if they are,

then it is clearly not at all unlikely that an all good, all powerful being would create a world in which those evils are allowed to occur. But how could atheists show this without first surveying all possible morally good purposes such a being might have, something they have clearly not done? Consequently, it seems, at most the atheist could argue that since no one has come up with any adequate purpose yet, it is unlikely that there is such a purpose. This argument, however, is very weak, as I will now show.

The first problem with this atheist argument is that it assumes that the various explanations people have offered for why an all good God would create evil--such as the free will theodicy--ultimately fail. But even if we grant that these theodicies fail, the argument is still very weak. To see why, consider an analogy. Suppose someone tells me that there is a rattlesnake in my garden, and I examine a portion of the garden and do not find the snake. I would only be justified in concluding that there was probably no snake in the garden if either: i) I had searched at least half the garden; or ii) I had good reason to believe that if the snake were in the garden, it would likely be in the portion of the garden that I examined. If, for instance, I were to randomly pick some small segment of the garden to search and did not find the snake, I would be unjustified in concluding from my search that there was probably no snake in the garden. Similarly, if I were blindfolded and did not have any idea of how large the garden was (e.g., whether it was ten square feet or several square miles), I would be unjustified in concluding that it was unlikely that there was a rattlesnake in the garden, even if I had searched for hours with my rattlesnake detecting dogs. Why? Because I would not have any idea of what percentage of the garden I had searched.

As with the garden example, we have no idea of how large the realm is of possible greater purposes for evil that an all good, omnipotent being could have. Hence we do not know what proportion of this realm we have actually searched. Indeed, considering the finitude of our own minds, we have good reason to believe that we have so far only searched a small proportion, and we have little reason to believe that the purposes God might have for evil would be in the proportion we searched. Thus, we have little objective basis for saying that the existence of the types of evil we find in the world is highly improbable under theism.

From the above discussion, therefore, it is clear that the relevant probability estimates in the case of the fine-tuning are much more secure than those estimates in the atheist's argument from evil, since unlike the latter, we can provide a fairly rigorous, objective basis for them based on actual calculations of the relative range of life-permitting values for the parameters of physics. (See the Appendix to this chapter for a rigorous derivation of the probability of the fine-tuning under the atheistic single-universe hypothesis.) Thus, I conclude, the core argument for preferring theism over the atheistic single-universe hypothesis is much stronger than the atheist argument from evil.

APPENDIX

In this Appendix, we offer a rigorous support for premise (2) of our main argument: that is, the claim that the fine-tuning is very improbable under the atheistic single-universe

hypothesis. Our support for premise (2) will involve three major subsections. Our first subsection will be devoted to explicating the fine-tuning of gravity since we will often use this to illustrate our arguments. Then, in our second subsection, we will show how the improbability of the fine-tuning under the atheistic single-universe hypothesis can be derived from a standard, objective principle of probabilistic reasoning called the principle of indifference. Finally, in our third subsection, we will explicate what it could mean to say that the fine-tuning is improbable given that the universe is a unique, unrepeatable event as assumed by the atheistic single-universe hypothesis. The appendix will in effect answer the common atheist objection that theists can neither justify the claim that the fine-tuning is improbable under the atheistic single-universe hypothesis, nor can they provide an account of what it could possibly mean to say that the fine-tuning is improbable.

i. The Example of Gravity

The force of gravity is determined by Newton's law $F = Gm_1m_2/r^2$. Here G is what is known as the gravitational constant, and is basically a number that determines the force of gravity in any given circumstance. For instance, the gravitational attraction between the moon and the earth is given by first multiplying the mass of the moon (m_1) times the mass of the earth (m_2), and then dividing by the distance between them squared (r^2). Finally, one multiplies this result by the number G to obtain the total force. Clearly the force is directly proportional to G : for example, if G were to double, the force between the moon and the earth would double.

In the previous section, we reported that some calculations indicate that the force of gravity must be fine-tuned to one part in 1040 in order for life to occur. What does such fine-tuning mean? To understand it, imagine a radio dial, going from 0 to $2G_0$, where G_0 represents the current value of the gravitational constant. Moreover, imagine the dial being broken up into 10^{40} --that is, ten thousand, billion, billion, billion, billion--evenly spaced tick marks. To claim that the strength of gravity must be fine-tuned to one part in 10^{40} is simply to claim that, in order for life to exist, the constant of gravity cannot vary by even one tick mark along the dial from its current value of G_0 .

ii. The Principle of Indifference

In the following subsections, we will use the principle of indifference to justify the assertion that the fine-tuning is highly improbable under the atheistic single-universe hypothesis.

A. The Principle Stated

Applied to cases in which there is a finite number of alternatives, the principle of indifference can be formulated as the claim that we should assign the same probability to what are called equipossible alternatives, where two or more alternatives are said to be equipossible if we have no reason to prefer one of the alternatives over any of the others. (In another version of the principle, alternatives that are relevantly symmetrical are

considered equipossible and hence the ones that should be assigned equal probability.) For instance, in the case of a standard two-sided coin, we have no more reason to think that the coin will land on heads than that it will land on tails, and so we assign them each an equal probability. Since the total probability must add up to one, this means that the coin has a 0.5 chance of landing on heads and an 0.5 chance of landing on tails. Similarly, in the case of a standard six-sided die, we have no more reason to think that it will land on one number, say a 6, than any of the other number, such as a 4. Thus, the principle of indifference tells us to assign each possible way of landing an equal probability--namely $1/6$.

The above explication of the principle applies only when there are a finite number of alternatives, for example six sides on a die. In the case of the fine-tuning, however, the alternatives are not finite but form a continuous magnitude. The value of G , for instance, conceivably could have been any number between 0 and infinity. Now, continuous magnitudes are usually thought of in terms of ranges, areas, or volumes depending on whether or not we are considering one, two, three or more dimensions. For example, the amount of water in a 8oz glass could fall anywhere within the range 0oz to 8oz, such as 6.012345645oz. Or, the exact position that a dart hits a dart board can fall anywhere within the area of the dart board. With some qualifications to be discussed below, the principle of indifference becomes in the continuous case the principle that when we have no reason to prefer any one value of a parameter over other, we should assign equal probabilities to equal ranges, areas, or volumes. So, for instance, suppose one aimlessly throws a dart at a dart board. Assuming the dart hits the board, what is the probability it will hit within the bulls eye? Since the dart is thrown aimlessly, we have no more reason to believe it will hit one part of the dart board than any other part. The principle of indifference, therefore, tells us that the probability of its hitting the bulls eye is the same as the probability of hitting any other part of the dart board of equal area. This means that the probability of it hitting the bull's eye is simply the ratio of the area of the bulls eye to the rest of the dart board. So, for instance, if the bulls eye forms only 5% of the total area of the board, then the probability of its hitting the bulls eye will be 5%.

b. Application to Fine-Tuning

In the case of the fine-tuning, we have no more reason to think that the parameters of physics will fall within the life-permitting range than the any other range, given the atheistic single-universe hypothesis. Thus according to the principle of indifference, equal ranges of these parameters should be assigned equal probabilities. As in the case of the dart board mentioned in the last section, this means that the probability of the parameters of physics falling within the life-permitting range under the atheistic single-universe hypothesis is simply the ratio of the range of life-permitting values (the "area of the bulls eye") to the total relevant range of possible values (the "relevant area of the dart board").

Now physicists can make rough estimates of the range of life-permitting values for the parameters of physics, as discussed above in the case of gravity, for instance. But what is the "total relevant range of possible values"? At first one might think that this range is

infinite, since the values of the parameters could conceivably be anything. This, however, is not correct, for although the possible range of values could be infinite, for most of these values we have no way of estimating whether they are life-permitting or not. We do not truly know, for example, what would happen if gravity were 1060 times stronger than its current value: as far as we know, a new form of matter might come into existence that could sustain life. Thus, as far as we know, there could be other life-permitting ranges far removed from the actual values that the parameters have. Consequently, all we can say is that the life-permitting range is very, very small relative to the limited range of values for which we can make estimates, a range that we will hereafter refer to as the "illuminated" range.

Fortunately, however, this limitation does not effect the overall argument. The reason is that, based on the principle of indifference, we can still say that it is very improbable for the values for the parameters of physics to have fallen in the life-permitting range instead of some other part of the "illuminated" range. (8) And this improbability is all that is actually needed for our main argument to work. To see this, consider an analogy. Suppose a dart landed on the bulls eye at the center of a huge dart board. Further, suppose that this bulls eye is surrounded by a very large empty, bulls-eye-free, area. Even if there were many other bulls eyes on the dart board, we would still take the fact that the dart landed on the bulls eye instead of some other part of the large empty area surrounding the bulls eye as strong evidence that it was aimed. Why? Because we would reason that given that the dart landed in the empty area, it was very improbable for it to land in the bulls eye by chance but not improbable if it were aimed. Thus, by the prime principle of confirmation, we could conclude that the dart landing on the bulls eye strongly confirms the hypothesis that it was aimed over the chance hypothesis.

c. The Principle Qualified:

Those who are familiar with the principle of indifference, and mathematics, will recognize that one important qualification needs to be made to the above account of how to apply the principle of indifference. (Those who are not mathematically adept might want to skip this and perhaps the next paragraph.) To understand the qualification, note that the ratio of ranges used in calculating the probability is dependent on how one parameterizes, or writes, the physical laws. For example, suppose for the sake of illustration that the range of life-permitting values for the gravitational constant is 0 to G_0 , and the "illuminated" range of possible values for G is 0 to $2G_0$. Then, the ratio of life-permitting values to the range of "illuminated" possible values for the gravitational constant will be $1/2$. Suppose, however, that one writes the law of gravity in the mathematically equivalent form of $F = \sqrt{U} m_1 m_2 / r^2$, instead of $F = G m_1 m_2 / r^2$, where $U = G^2$. (In this way of writing Newton's law, U becomes the new gravitational constant.) This means that $U_0 = G_0^2$, where U_0 , like G_0 , represents the actual value of U in our universe. Then, the range of life-permitting values would be 0 to U_0 , and the "illuminated" range of possible values would be 0 to $4U_0$ on the U scale (which is equivalent to 0 to $2G_0$ on the G scale). Hence, calculating the ratio of life-permitting values using the U scale instead of G scale yields a ratio of $1/4$ instead of $1/2$. Indeed, for almost any ratio one chooses--such as one in which the life-permitting range is about the

same size as the "illuminated" range--there exist mathematically equivalent forms of Newton's law that will yield that ratio. So, why choose the standard way of writing Newton's law to calculate the ratio instead of one in which the fine-tuning is not improbable at all?

The answer to this question is to require that the proportion used in calculating the probability be between real physical ranges, areas, or volumes, not merely mathematical representations of them. That is, the proportion given by the scale used in one's representation must directly correspond to the proportions actually existing in physical reality. As an illustration, consider how we might calculate the probability that a meteorite will fall in New York state instead of somewhere else in the northern, contiguous United States. One way of doing this is to take a standard map of the northern, contiguous United States, measure the area covered by New York on the map (say 2 square inches) and divide it by the total area of the map (say 30 square inches). If we were to do this, we would get approximately the right answer because the proportions on a standard map directly correspond to the actual proportions of land areas in the United States.⁽⁹⁾ On the other hand, suppose we had a map made by some lover of the East coast in which, because of the scale used, the East coast took up half the map. If we used the proportions of areas as represented by this map we would get the wrong answer since the scale used would not correspond to real proportions of land areas. Applied to the fine-tuning, this means that our calculations of these proportions must be done using parameters that directly correspond to physical quantities in order to yield valid probabilities. In the case of gravity, for instance, the gravitational constant G directly corresponds to the force between two unit masses a unit distance apart, whereas U does not. (Instead, U corresponds to the square of the force.) Thus, G is the correct parameter to use in calculating the probability.⁽¹⁰⁾

d. Support for Principle

Finally, although the principle of indifference has been criticized on various grounds, several powerful reasons can be offered for its soundness if it is restricted in the ways explained in the last subsection. First, it has an extraordinarily wide range of applicability. As Roy Weatherford notes in his book, *Philosophical Foundations of Probability Theory*, "an astonishing number of extremely complex problems in probability theory have been solved, and usefully so, by calculations based entirely on the assumption of equiprobable alternatives [that is, the principle of indifference]" (p. 35). Second, the principle can be given a strong theoretical grounding in information theory, being derivable from Shannon's important and well-known measure of information, or negative entropy (Sklar, p. 191; van Fraassen, p. 345.). Finally, in certain everyday cases the principle of indifference seems the only justification we have for assigning probability. To illustrate, suppose that in the last ten minutes a factory produced the first fifty-sided die ever produced. Further suppose that every side of the die is (macroscopically) perfectly symmetrical with every other side, except for there being different numbers printed on each side. (The die we are imagining is like a fair six-sided die except that it has fifty sides instead of six.) Now, we all immediately know that upon being rolled the probability of the die coming up on any given side is one in fifty. Yet, we

do not know this directly from experience with fifty-sided dies, since by hypothesis no one has yet rolled such dies to determine the relative frequency with which they come up on each side. Rather, it seems our only justification for assigning this probability is the principle of indifference: that is, given that every side of the die is macroscopically symmetrical with every other side, we have no reason to believe that the die will land on one side over any other side, and thus we assign them all an equal probability of one in fifty. (11)

iii. The Meaning of Probability

In the last section we used the principle of indifference to rigorously justify the claim that the fine-tuning is highly improbable under the atheistic single-universe hypothesis. We did not explain, however, what it could mean to say that it is improbable, especially given that the universe is a unique, unrepeatable event. To address this issue, we shall now show how the probability invoked in the fine-tuning argument can be straightforwardly understood either as what could be called classical probability or as what is known as epistemic probability.

Classical Probability

The classical conception of probability defines probability in terms of the ratio of number of "favorable cases" to the total number of equipossible cases. (See Weatherford, chapter 2.) Thus, for instance, to say the probability of a die coming up "4" is $1/6$ is simply to say that the number of ways a die could come up "4" is $1/6$ the number of equipossible ways it could come up. Extending this definition to the continuous case, classical probability can be defined in terms of the relevant ratio of ranges, areas, or volumes over which the principle of indifference applies. Thus, under this extended definition, to say that the probability of the parameters of physics falling into the life-permitting value is very improbable simply means that the ratio of life-permitting values to the range of possible values is very, very small. Finally, notice that this definition of probability implies the principle of indifference, and thus we can be certain that the principle of indifference holds for classical probability.

Epistemic Probability

Epistemic probability is a widely-recognized type of probability that applies to claims, statements, and hypotheses--that is, what philosophers call propositions. (12) Roughly, the epistemic probability of a proposition can be thought of as the degree of credence--that is, degree of confidence or belief--we rationally should have in the proposition. Put differently, epistemic probability is a measure of our rational degree of belief under a condition of ignorance concerning whether a proposition is true or false. For example, when one says that the special theory of relativity is probably true, one is making a statement of epistemic probability. After all, the theory is actually either true or false. But, we do not know for sure whether it is true or false, so we say it is probably true to indicate that we should put more confidence in its being true than in its being false. It is also commonly argued that the probability of a coin toss is best understood as a case of

epistemic probability. Since the side the coin will land on is determined by the laws of physics, it is argued that our assignment of probability is simply a measure of our rational expectations concerning which side the coin will land on.

Besides epistemic probability simpliciter, philosophers also speak of what is known as the conditional epistemic probability of one proposition on another. (A proposition is any claim, assertion, statement, or hypothesis about the world). The conditional epistemic probability of a proposition R on another proposition S--written as $P(R/S)$ --can be defined as the degree to which the proposition S of itself should rationally lead us to expect that R is true. For example, there is a high conditional probability that it will rain today on the hypothesis that the weatherman has predicted a 100% chance of rain, whereas there is a low conditional probability that it will rain today on the hypothesis that the weatherman has predicted only a 2% chance of rain. That is, the hypothesis that the weatherman has predicted a 100% chance of rain today should strongly lead us to expect that it will rain, whereas the hypothesis that the weatherman has predicted a 2% should lead us to expect that it will not rain. Under the epistemic conception of probability, therefore, the statement that the fine-tuning of the Cosmos is very improbable under the atheistic single-universe hypothesis makes perfect sense: it is to be understood as making a statement about the degree to which the atheistic single-universe hypothesis would or should, of itself, rationally lead us to expect the cosmic fine-tuning.(13)

Conclusion

The above discussion shows that we have at least two ways of understanding improbability invoked in our main argument: as classical probability or epistemic probability. This undercuts the common atheist objection that it is meaningless to speak of the probability of the fine-tuning under the atheistic single-universe hypothesis since under this hypothesis the universe is not a repeatable event.

Conclusion to Appendix

We have shown in this Appendix that the claim that the fine-tuning is very improbable under the atheistic single-universe hypothesis can be rigorously justified.

References

Barrow, John and Tipler, Frank. *The Anthropic Cosmological Principle*. Oxford: Oxford University Press, 1986.

Davies, Paul. *The Accidental Universe*. Cambridge: Cambridge University Press, 1982.

_____. *Superforce: The Search for a Grand Unified Theory of Nature*. New York: Simon and Schuster, 1984.

_____. *The Cosmic Blueprint: New Discoveries in Nature's Creative Ability to Order the Universe*. New York, Simon and Schuster, 1988.

Davis, John Jefferson. "The Design Argument, Cosmic "Fine-tuning," and the Anthropic Principle." *The International Journal of Philosophy of Religion*.

Dirac, P. A. M. "The evolution of the physicist's picture of nature." *Scientific American*, May 1963.

Hacking, Ian. *The Emergence of Probability: A Philosophical Study of Early Ideas About Probability, Induction and Statistical Inference*. Cambridge: Cambridge University Press, 1975.

Leslie, John. "How to Draw Conclusions From a Fine-Tuned Cosmos." In Robert Russell, et. al., eds., *Physics, Philosophy and Theology: A Common Quest for Understanding*. Vatican City State: Vatican Observatory Press, pp. 297-312, 1988.

_____. *Universes*. New York: Routledge, 1989.

Plantinga, Alvin. *Warrant and Proper Function*. Oxford: Oxford University Press, 1993.

Sklar, Lawrence. *Physics and Chance: Philosophical Issues in the Foundation of Statistical Mechanics*. Cambridge: Cambridge University Press, 1993.

Smart, J. J. C. "Laws of Nature and Cosmic Coincidence", *The Philosophical Quarterly*, Vol. 35, No. 140.

Smith, George. "Atheism: The Case Against God." Reprinted in *An Anthology of Atheism and Rationalism*, edited by Gordon Stein, Prometheus Press, 1980.

Smith, Quentin. "World Ensemble Explanations." *Pacific Philosophical Quarterly* 67, 1986.

Swinburne, Richard. *An Introduction to Confirmation Theory*. London: Methuen and Co. Ltd, 1973.

Van Fraassen, Bas. *Laws and Symmetry*. Oxford: Oxford University Press, 1989.

Weatherford, Roy. *Foundations of Probability Theory*. Boston, MA: Routledge and Kegan Paul, 1982.

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2. For those familiar with the probability calculus, a precise statement of the degree to which evidence counts in favor of one hypothesis over another can be given in terms of the odds form of Bayes's Theorem: that is, $P(H1/E)/P(H2/E) = [P(H1)/P(H2)] \times$

$[P(E/H1)P(E/H2)]$. The general version of the principle stated here, however, does not require the applicability or truth of Bayes's theorem.

3. Those with some training in probability theory will want to note that the kind of probability invoked here is what philosophers call epistemic probability, which is a measure of the rational degree of belief we should have in a proposition. (See Appendix, subsection III.) Since our rational degree of belief in a necessary truth can be less than 1, we can sensibly speak of it being improbable for a given law of nature to exist necessarily. For example, we can speak of an unproven mathematical hypotheses--such as Goldbach's conjecture that every number greater than 6 is the sum of two odd primes--as being probably true or probably false given our current evidence, even though all mathematical hypotheses are either necessarily true or necessarily false.

4. I define a "universe" as any region of space-time that is disconnected from other regions in such a way that the parameters of physics in that region could differ significantly from the other regions.

5. Moreover, the advocate of the atheistic many-universes hypothesis could not avoid this problem by hypothesizing that the many-universes always existed as a "brute fact" without being produced by a universe generator. This would simply add to the problem: it would not only leave unexplained the fine-tuning of our own universe, but would leave unexplained the existence of these other universes.

6. This connection between order and probability, and the second law of thermodynamics in general, is given a precise formulation in a branch of fundamental physics called statistical mechanics, according to which a state of high order represents a very improbable state, and a state of disorder represents a highly probable state.

7. A more thorough discussion of the atheist argument from evil is presented in chapter ?? and a discussion of other atheistic arguments is given in chapter ??.

8. In the language of probability theory, this sort of probability is known as a conditional probability. In the case of G , calculations indicate that this conditional probability of the fine-tuning would be less than $1/10^{40}$ since the life-permitting range is less than $1/10^{40}$ of the range 0 to $2G_0$, the latter range being certainly smaller than the total "illuminated" range for G .

9. I say "approximately right" because in this case the principle of indifference only applies to strips of land that are the same distance from the equator. The reason for this is that only strips of land equi-distance from the equator are truly symmetrical with regard to the motion of the earth. Since the northern, contiguous United States is all about the same distance from the equator, equal land areas should be assigned approximately equal probabilities.

10. This solution will not always work since, as the well-known Bertrand Paradoxes illustrate (e.g., see Weatherford, p. 56), sometimes there are two equally good and

conflicting parameters that directly correspond to a physical quantity and to which the principle of indifference applies. In these cases, at best we can say that the probability is somewhere between that given by the two conflicting parameters. This problem, however, typically does not seem to arise for most cases of fine-tuning. Also, it should be noted that the principle of indifference applies best to classical or epistemic probability, not other kinds of probability such as relative frequency. (See subsection (iii) below.)

11. Of course, one could claim that our experience with items such as coins and dies teaches us that whenever two alternatives are macroscopically symmetrical, we should assign them an equal probability, unless we have a particular reason not to. All this claim implies, however, is that we have experiential justification for the principle of indifference, and thus it does not take away from our main point that in certain practical situations we must rely on the principle of indifference to justify our assignment of probability.

12. For an in-depth discussion of epistemic probability, see Swinburne (1973), Hacking, (1975), and Plantinga (1993), chapters 8 and 9.

13. It should be noted here that this rational degree of expectation should not be confused with the degree to which one should expect the parameters of physics to fall within the life-permitting range if one believed the atheistic single-universe hypothesis. For, even those who believe in this atheistic hypothesis should expect the parameters of physics to be life-permitting since this follows from the fact that we are alive. Rather, the conditional epistemic probability in this case is the degree to which the atheistic single-universe hypothesis of itself should lead us to expect parameters of physics to be life-permitting. This means that in assessing the conditional epistemic probability in this and other similar cases, one must exclude contributions to our expectations arising from other information we have, such as that we are alive. In the case at hand, one way of doing this is by means of the following sort of thought experiment. Imagine a disembodied being with mental capacities and a knowledge of physics comparable to that of the most intelligent physicists alive today, except that the being does not know whether the parameters of physics are within the life-permitting range. Further, suppose that this disembodied being believed in the atheistic single-universe hypothesis. Then, the degree that being should rationally expect the parameters of physics to be life-permitting will be equal to our conditional epistemic probability, since its expectation is solely a result of its belief in the atheistic single-universe hypothesis, not other factors such as its awareness of its own existence.

Truth Journal

The Existence of God and the Beginning of the Universe

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The *kalam* cosmological argument, by showing that the universe began to exist, demonstrates that the world is not a necessary being and, therefore, not self-explanatory with respect to its existence. Two philosophical arguments and two scientific confirmations are presented in support of the beginning of the universe. Since whatever begins to exist has a cause, there must exist a transcendent cause of the universe.

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Introduction

"The first question which should rightly be asked," wrote G.W.F. Leibniz, is "*Why is there something rather than nothing?*"[1] This question does seem to possess a profound existential force, which has been felt by some of mankind's greatest thinkers. According to Aristotle, philosophy begins with a sense of wonder about the world, and the most profound question a man can ask concerns the origin of the universe.[2] In his biography of Ludwig Wittgenstein, Norman Malcolm reports that Wittgenstein said that he sometimes had a certain experience which could best be described by saying that "when I have it, *I wonder at the existence of the world*. I am then inclined to use such phrases as 'How extraordinary that anything should exist!'"[3] Similarly, one contemporary philosopher remarks, ". . . My mind often seems to reel under the immense significance this question has for me. That anything exists at all does seem to me a matter for the deepest awe."[4]

Why *does* something exist instead of nothing? Leibniz answered this question by arguing that something exists rather than nothing because a necessary being exists which carries within itself its reason for existence and is the sufficient reason for the existence of all contingent being.[5]

Although Leibniz (followed by certain contemporary philosophers) regarded the non-existence of a necessary being as logically impossible, a more modest explication of necessity of existence in terms of what he calls "factual necessity" has been given by John Hick: a necessary being is an eternal, uncaused, indestructible, and incorruptible being.[6] Leibniz, of course, identified the necessary being as God. His critics, however, disputed this identification, contending that the material universe could itself be assigned the status of a necessary being. "Why," queried David Hume, "may not the material universe be the necessary existent Being, according to this pretended explanation of necessity?"[7] Typically, this has been precisely the position of the atheist. Atheists have not felt compelled to embrace the view that the universe came into being out of nothing for no reason at all; rather they regard the universe itself as a sort of factually necessary being: the universe is eternal, uncaused, indestructible, and incorruptible. As Russell neatly put it, " . . . The universe is just there, and that's all."[8]

Does Leibniz's argument therefore leave us in a rational impasse, or might there not be some further resources available for untangling the riddle of the existence of the world? It seems to me that there are. It will be remembered that an essential property of a necessary being is eternity. If then it could be made plausible that the universe began to exist and is not therefore eternal, one would to that extent at least have shown the superiority of theism as a rational world view.

Now there is one form of the cosmological argument, much neglected today but of great historical importance, that aims precisely at the demonstration that the universe had a beginning in time.[9] Originating in the efforts of Christian theologians to refute the Greek doctrine of the eternity of matter, this argument was developed into sophisticated formulations by medieval Islamic and Jewish theologians, who in turn passed it back to the Latin West. The argument thus has a broad inter- sectarian appeal, having been defended by Muslims, Jews, and Christians both Catholic and Protestant.

This argument, which I have called the kalam cosmological argument, can be exhibited as follows:

1. Whatever begins to exist has a cause of its existence.
2. The universe began to exist.
 - 2.1 Argument based on the impossibility of an actual infinite.
 - 2.11 An actual infinite cannot exist.
 - 2.12 An infinite temporal regress of events is an actual infinite.
 - 2.13 Therefore, an infinite temporal regress of events cannot exist.

- 2.2 Argument based on the impossibility of the formation of an actual infinite by successive addition.
 - 2.21 A collection formed by successive addition cannot be actually infinite.
 - 2.22 The temporal series of past events is a collection formed by successive addition.
 - 2.23 Therefore, the temporal series of past events cannot be actually infinite.

3. Therefore, the universe has a cause of its existence.

Let us examine this argument more closely.

Defense of the Kalam Cosmological Argument

Second Premiss

Clearly, the crucial premiss in this argument is (2), and two independent arguments are offered in support of it. Let us therefore turn first to an examination of the supporting arguments.

First Supporting Argument

In order to understand (2.1), we need to understand the difference between a potential infinite and an actual infinite. Crudely put, a potential infinite is a collection which is increasing toward infinity as a limit, but never gets there. Such a collection is really indefinite, not infinite. The sign of this sort of infinity, which is used in calculus, is ∞ . An actual infinite is a collection in which the number of members really *is* infinite. The collection is not growing toward infinity; it is infinite, it is "complete." The sign of this sort of infinity, which is used in set theory to designate sets which have an infinite number of members, such as $\{1, 2, 3, \dots\}$, is \aleph_0 . Now (2.11) maintains, not that a potentially infinite number of things cannot exist, but that an actually infinite number of things cannot exist. For if an actually infinite number of things could exist, this would spawn all sorts of absurdities.

Perhaps the best way to bring home the truth of (2.11) is by means of an illustration. Let me use one of my favorites, Hilbert's Hotel, a product of the mind of the great German mathematician, David Hilbert. Let us imagine a hotel with a finite number of rooms. Suppose, furthermore, that *all the rooms are full*. When a new guest arrives asking for a room, the proprietor apologizes, "Sorry, all the rooms are full." But now let us imagine a hotel with an infinite number of rooms and suppose once more that all the rooms are full. There is not a single vacant room throughout the entire infinite hotel. Now suppose a new guest shows up, asking for a room. "But of course!" says the proprietor, and he immediately shifts the person in room #1 into room #2, the person in room #2 into room

#3, the person in room #3 into room #4 and so on, out to infinity. As a result of these room changes, room #1 now becomes vacant and the new guest gratefully checks in. But remember, before he arrived, all the rooms were full! Equally curious, according to the mathematicians, there are now no more persons in the hotel than there were before: the number is just infinite. But how can this be? The proprietor just added the new guest's name to the register and gave him his keys-how can there not be one more person in the hotel than before? But the situation becomes even stranger. For suppose an infinity of new guests show up the desk, asking for a room. "Of course, of course!" says the proprietor, and he proceeds to shift the person in room #1 into room #2, the person in room #2 into room #4, the person in room #3 into room #6, and so on out to infinity, always putting each former occupant into the room number twice his own. As a result, all the odd numbered rooms become vacant, and the infinity of new guests is easily accommodated. And yet, before they came, all the rooms were full! And again, strangely enough, the number of guests in the hotel is the same after the infinity of new guests check in as before, even though there were as many new guests as old guests. In fact, the proprietor could repeat this process *infinitely many times* and yet there would never be one single person more in the hotel than before.

But Hilbert's Hotel is even stranger than the German mathematician gave it out to be. For suppose some of the guests start to check out. Suppose the guest in room #1 departs. Is there not now one less person in the hotel? Not according to the mathematicians-but just ask the woman who makes the beds! Suppose the guests in room numbers 1, 3, 5, . . . check out. In this case an infinite number of people have left the hotel, but according to the mathematicians there are no less people in the hotel-but don't talk to that laundry woman! In fact, we could have every other guest check out of the hotel and repeat this process infinitely many times, and yet there would never be any less people in the hotel. But suppose instead the persons in room number 4, 5, 6, . . . checked out. At a single stroke the hotel would be virtually emptied, the guest register reduced to three names, and the infinite converted to finitude. And yet it would remain true that the *same number* of guests checked out this time as when the guests in room numbers 1, 3, 5, . . . checked out. Can anyone sincerely believe that such a hotel could exist in reality? These sorts of absurdities illustrate the impossibility of the existence of an actually infinite number of things.

That takes us to (2.12). The truth of this premiss seems fairly obvious. If the universe never began to exist, then prior to the present event there have existed an actually infinite number of previous events. Hence, a beginningless series of events in time entails the existence of an actually infinite number of things, namely, past events.

Given the truth of (2.11) and (2.12), the conclusion (2.13) logically follows. The series of past events must be finite and have a beginning. But since the universe is not distinct from the series of events, it follows that the universe began to exist.

At this point, we might find it profitable to consider several objections that might be raised against the argument. First let us consider objections to (2.11). Wallace Matson objects that the premiss must mean that an actually infinite number of things is *logically*

impossible; but it is easy to show that such a collection is logically possible. For example, the series of negative numbers $\{ \dots -3, -2, -1 \}$ is an actually infinite collection with no first member.[10] Matson's error here lies in thinking that (2.11) means to assert the *logical* impossibility of an actually infinite number of things. What the premiss expresses is the real or factual impossibility of an actual infinite. To illustrate the difference between real and logical possibility: there is no logical impossibility in something's coming to exist without a cause, but such a circumstance may well be really or metaphysically impossible. In the same way, (2.11) asserts that the absurdities entailed in the real existence of an actual infinite show that such an existence is metaphysically impossible. Hence, one could grant that in the conceptual realm of mathematics one can, given certain conventions and axioms, speak consistently about infinite sets of numbers, but this in no way implies that an actually infinite number of things is really possible. One might also note that the mathematical school of intuitionism denies that even the number series is actually infinite (they take it to be potentially infinite only), so that appeal to number series as examples of actual infinities is a moot procedure.

The late J.L. Mackie also objected to (2.11), claiming that the absurdities are resolved by noting that for infinite groups the axiom "the whole is greater than its part" does not hold, as it does for finite groups.[11] Similarly, Quentin Smith comments that once we understand that an infinite set has a proper subset which has the same number of members as the set itself, the purportedly absurd situations become "perfectly believable." [12] But to my mind, it is precisely this feature of infinite set theory which, when translated into the realm of the real, yields results which are perfectly incredible, for example, Hilbert's Hotel. Moreover, not all the absurdities stem from infinite set theory's denial of Euclid's axiom: the absurdities illustrated by guests checking out of the hotel stem from the self-contradictory results when the inverse operations of subtraction or division are performed using transfinite numbers. Here the case against an actually infinite collection of things becomes decisive.

Finally one might note the objection of Sorabji, who maintains that illustrations such as Hilbert's Hotel involve no absurdity. In order to understand what is wrong with the *kalam* argument, he asks us to envision two parallel columns beginning at the same point and stretching away into the infinite distance, one the column of past years and the other the column of past days. The sense in which the column of past days is no larger than the column of past years, says Sorabji, is that the column of days will not "stick out" beyond the far end of the other column, since neither column has a far end. Now in the case of Hilbert's Hotel there is the temptation to think that some unfortunate resident at the far end will drop off into space. But there is no far end: the line of residents will not stick out beyond the far end of the line of rooms. Once this is seen, the outcome is just an explicable- even if a surprising and exhilarating- truth about infinity.[13] Now Sorabji is certainly correct, as we have seen, that Hilbert's Hotel illustrates an explicable truth about the nature of the actual infinite. If an actually infinite number of things could exist, a Hilbert's Hotel would be possible. But Sorabji seems to fail to understand the heart of the paradox: I, for one, experience no temptation to think of people dropping off the far end of the hotel, for there is none, but I do have difficulty believing that a hotel in which all the rooms are occupied can accommodate more guests. Of course, the line of guests will

not stick out beyond the line of rooms, but if all of those infinite rooms *already* have guests in them, then can moving those guests about really create empty rooms? Sorabji's own illustration of the columns of past years and days I find not a little disquieting: if we divide the columns into foot-long segments and mark one column as the years and the other as the days, then one column is as long as the other and yet for every foot-length segment in the column of years, 365 segments of equal length are found in the column of days! These paradoxical results can be avoided only if such actually infinite collections can exist only in the imagination, not in reality. In any case, the Hilbert's Hotel illustration is not exhausted by dealing only with the addition of new guests, for the subtraction of guests results in absurdities even more intractable. Sorabji's analysis says nothing to resolve these. Hence, it seems to me that the objections to premiss (2.11) are less plausible than the premiss itself.

With regard to (2.12), the most frequent objection is that the past ought to be regarded as a potential infinite only, not an actual infinite. This was Aquinas's position versus Bonaventure, and the contemporary philosopher Charles Hartshorne seems to side with Thomas on this issue.[14] Such a position is, however, untenable. The future is potentially infinite, since it does not exist; but the past is actual in a way the future is not, as evidenced by the fact that we have traces of the past in the present, but no traces of the future. Hence, if the series of past events never began to exist, there must have been an actually infinite number of past events.

The objections to either premiss therefore seem to be less compelling than the premisses themselves. Together they imply that the universe began to exist. Hence, I conclude that this argument furnishes good grounds for accepting the truth of premiss (2) that the universe began to exist.

Second Supporting Argument

The second argument (2.2) for the beginning of the universe is based on the impossibility of forming an actual infinite by successive addition. This argument is distinct from the first in that it does not deny the possibility of the existence of an actual infinite, but the possibility of its being *formed* by successive addition.

Premiss (2.21) is the crucial step in the argument. One cannot form an actually infinite collection of things by successively adding one member after another. Since one can always add one more before arriving at infinity, it is impossible to reach actual infinity. Sometimes this is called the impossibility of "counting to infinity" or "traversing the infinite." It is important to understand that this impossibility has nothing to do with the amount of time available: it belongs to the nature of infinity that it cannot be so formed.

Now someone might say that while an infinite collection cannot be formed by beginning at a point and adding members, nevertheless an infinite collection could be formed by never beginning but ending at a point, that is to say, ending at a point after having added one member after another from eternity. But this method seems even more unbelievable than the first method. If one cannot count to infinity, how can one count down from

infinity? If one cannot traverse the infinite by moving in one direction, how can one traverse it by simply moving in the opposite direction?

Indeed, the idea of a beginningness series ending in the present seems to be absurd. To give just one illustration: suppose we meet a man who claims to have been counting from eternity and is now finishing: . . ., -3, -2, -1, 0. We could ask, why did he not finish counting yesterday or the day before or the year before? By then an infinite time had already elapsed, so that he should already have finished by then. Thus, at no point in the infinite past could we ever find the man finishing his countdown, for by that point he should already be done! In fact, no matter how far back into the past we go, we can never find the man counting at all, for at any point we reach he will have already finished. But if at no point in the past do we find him counting, this contradicts the hypothesis that he has been counting from eternity. This illustrates the fact that the formation of an actual infinite by successive addition is equally impossible whether one proceeds to or from infinity.

Premiss (2.22) presupposes a dynamical view of time according to which events are actualized in serial fashion, one after another. The series of events is not a sort of timelessly subsisting world-line which appears successively in consciousness. Rather becoming is real and essential to temporal process. Now this view of time is not without its challengers, but to consider their objections in this article would take us too far afield.[15] In this piece, we must rest content with the fact that we are arguing on common ground with our ordinary intuitions of temporal becoming and in agreement with a good number of contemporary philosophers of time and space.

Given the truth of (2.21) and (2.22), the conclusion (2.23) logically follows. If the universe did not begin to exist a finite time ago, then the present moment could never arrive. But obviously, it has arrived. Therefore, we know that the universe is finite in the past and began to exist.

Again, it would be profitable to consider various objections that have been offered against this reasoning. Against (2.21), Mackie objects that the argument illicitly assumes an infinitely distant starting point in the past and then pronounces it impossible to travel from that point to today. But there would in an infinite past be no starting point, not even an infinitely distant one. Yet from any given point in the infinite past, there is only a finite distance to the present.[16] Now it seems to me that Mackie's allegation that the argument presupposes an infinitely distant starting point is entirely groundless. The beginningless character of the series only serves to accentuate the difficulty of its being formed by successive addition. The fact that there is *no beginning at all*, not even an infinitely distant one, makes the problem more, not less, nettlesome. And the point that from any moment in the infinite past there is only a finite temporal distance to the present may be dismissed as irrelevant. The question is not how any finite portion of the temporal series can be formed, but how the whole infinite series can be formed. If Mackie thinks that because every segment of the series can be formed by successive addition therefore the whole series can be so formed, then he is simply committing the fallacy of composition.

Sorabji similarly objects that the reason it is impossible to count down from infinity is because counting involves by nature taking a starting number, which is lacking in this case. But completing an infinite lapse of years involves no starting year and is, hence, possible.[17] But this response is clearly inadequate, for, as we have seen, the years of an infinite past could be enumerated by the negative numbers, in which case a completed infinity of years would, indeed, entail a beginningless countdown from infinity. Sorabji anticipates this rebuttal, however, and claims that such a backwards countdown is possible in principle and therefore no logical barrier has been exhibited to the elapsing of an infinity of past years. Again, however, the question I am posing is not whether there is a logical contradiction in such a notion, but whether such a countdown is not metaphysically absurd. For we have seen that such a countdown should at any point already have been completed. But Sorabji is again ready with a response: to say the countdown should at any point already be over confuses counting an *infinity* of numbers with counting *all* the numbers. At any given point in the past, the eternal counter will have already counted an infinity of negative numbers, but that does not entail that he will have counted all the negative numbers. I do not think the argument makes this alleged equivocation, and this may be made clear by examining the reason why our eternal counter is supposedly able to complete a count of the negative numbers ending at zero. In order to justify the possibility of this intuitively impossible feat, the argument's opponent appeals to the so-called Principle of Correspondence used in set theory to determine whether two sets are equivalent (that is, have the same number of members) by matching the members of one set with the members of the other set and *vice versa*. On the basis of this principle the objector argues that since the counter has lived, say, an infinite number of years and since the set of past years can be put into a one-to-one correspondence with the set of negative numbers, it follows that by counting one number a year an eternal counter would complete a countdown of the negative numbers by the present year. If we were to ask why the counter would not finish next year or in a hundred years, the objector would respond that prior to the present year an infinite number of years will have already elapsed, so that by the Principle of Correspondence, all the numbers should have been counted by now. But this reasoning backfires on the objector: for, as we have seen, on this account the counter should at any point in the past have already finished counting all the numbers, since a one-to-one correspondence exists between the years of the past and the negative numbers. Thus, there is no equivocation between counting an infinity of numbers and counting all the numbers. But at this point a deeper absurdity bursts in view: for suppose there were another counter who counted at a rate of one negative number per day. According to the Principle of Correspondence, which underlies infinite set theory and transfinite arithmetic, both of our eternal counters will finish their countdowns at the same moment, even though one is counting at a rate 365 times faster than the other! Can anyone believe that such scenarios can actually obtain in reality, but do not rather represent the outcome of an imaginary game being played in a purely conceptual realm according to adopted logical conventions and axioms?

As for premiss (2.22), many thinkers have objected that we need not regard the past as a beginningless infinite series with an end in the present. Popper, for example, admits that the *set* of all past events is actually infinite, but holds that the *series* of past events is potentially infinite. This may be seen by beginning in the present and numbering the

events backwards, thus forming a potential infinite. Therefore, the problem of an actual infinite's being formed by successive addition does not arise.[18] Similarly, Swinburne muses that it is dubious whether a completed infinite series with no beginning but an end makes sense, but he proposes to solve the problem by beginning in the present and regressing into the past, so that the series of past events would have no end and would therefore not be a completed infinite.[19] This objection, however, clearly confuses the *mental regress* of counting with the *real progress* of the temporal series of events itself. Numbering the series from the present backwards only shows that if there are an infinite number of past events, then we can denumerate an infinite number of past events. But the problem is, how can this infinite collection of events come to be *formed* by successive addition? How we mentally conceive the series does not in any way affect the ontological character of the series itself as a series with no beginning but an end, or in other words, as an actual infinite completed by successive addition.

Once again, then, the objections to (2.21) and (2.22) seem less plausible than the premisses themselves. Together they imply (2.23), or that the universe began to exist.

First Scientific Confirmation

These purely philosophical arguments for the beginning of the universe have received remarkable confirmation from discoveries in astronomy and astrophysics during this century. These confirmations might be summarized under two heads: the confirmation from the expansion of the universe and the confirmation from thermodynamic properties of the universe.

With regard to the first, Hubble's discovery in 1929 of the red-shift in the light from distant galaxies began a revolution in astronomy perhaps as significant as the Copernican revolution. Prior to this time the universe as a whole was conceived to be static; but the startling conclusion to which Hubble was led was that the red-shift is due to the fact that the universe is in fact *expanding*. The staggering implication of this fact is that as one traces the expansion back in time, the universe becomes denser and denser until one reaches a point of infinite density from which the universe began to expand. The upshot of Hubble's discovery was that at some point in the finite past-probably around 15 billion years ago-the entire known universe was contracted down to a single mathematical point which marked the origin of the universe. That initial explosion has come to be known as the "Big Bang." Four of the world's most prominent astronomers described that event in these words:

The universe began from a state of infinite density. . . . Space and time were created in that event and so was all the matter in the universe. It is not meaningful to ask what happened before the Big Bang; it is like asking what is north of the North Pole. Similarly, it is not sensible to ask where the Big Bang took place. The point-universe was not an object isolated in space; it was the entire universe, and so the answer can only be that the Big Bang happened everywhere.[20]

This event that marked the beginning of the universe becomes all the more amazing when one reflects on the fact that a state of "infinite density" is synonymous to "nothing."

There can be no object that possesses infinite density, for if it had any size at all it could still be even more dense. Therefore, as Cambridge astronomer Fred Hoyle points out, the Big Bang Theory requires the creation of matter from nothing. This is because as one goes back in time, one reaches a point at which, in Hoyle's words, the universe was "shrunk down to nothing at all." [21] Thus, what the Big Bang model of the universe seems to require is that the universe began to exist and was created out of nothing.

Some theorists have attempted to avoid the absolute beginning of the universe implied by the Big Bang theory by speculating that the universe may undergo an infinite series of expansions and contractions. There are, however, good grounds for doubting the adequacy of such an oscillating model of the universe: (i) The oscillating model appears to be physically impossible. For all the talk about such models, the fact seems to be that they are only theoretically, but not physically possible. As the late Professor Tinsley of Yale explains, in oscillating models "even though the mathematics say that the universe oscillates, there is no known physics to reverse the collapse and bounce back to a new expansion. The physics seems to say that those models start from the Big Bang, expand, collapse, then end." [22] In order for the oscillating model to be correct, it would seem that the known laws of physics would have to be revised. (ii) The oscillating model seems to be observationally untenable. Two facts of observational astronomy appear to run contrary to the oscillating model. First, the observed homogeneity of matter distribution throughout the universe seems unaccountable on an oscillating model. During the contraction phase of such a model, black holes begin to gobble up surrounding matter, resulting in an inhomogeneous distribution of matter. But there is no known mechanism to "iron out" these inhomogeneities during the ensuing expansion phase. Thus, the homogeneity of matter observed throughout the universe would remain unexplained. Second, the density of the universe appears to be insufficient for the re-contraction of the universe. For the oscillating model to be even possible, it is necessary that the universe be sufficiently dense such that gravity can overcome the force of the expansion and pull the universe back together again. However, according to the best estimates, if one takes into account both luminous matter and non-luminous matter (found in galactic halos) as well as any possible contribution of neutrino particles to total mass, the universe is still only about one-half that needed for re-contraction. [23] Moreover, recent work on calculating the speed and deceleration of the expansion confirms that the universe is expanding at, so to speak, "escape velocity" and will not therefore re-contract. According to Sandage and Tammann, "Hence, we are forced to decide that . . . it seems inevitable that the Universe will expand forever"; they conclude, therefore, that "the Universe has happened only once." [24]

Second Scientific Confirmation

As if this were not enough, there is a second scientific confirmation of the beginning of the universe based on the thermodynamic properties of various cosmological models. According to the second law of thermodynamics, processes taking place in a closed system always tend toward a state of equilibrium. Now our interest is in what implications this has when the law is applied to the universe as a whole. For the universe is a gigantic closed system, since it is everything there is and no energy is being fed into

it from without. The second law seems to imply that, given enough time, the universe will reach a state of thermodynamic equilibrium, known as the "heat death" of the universe. This death may be hot or cold, depending on whether the universe will expand forever or eventually re-contract. On the one hand, if the density of the universe is great enough to overcome the force of the expansion, then the universe will re-contract into a hot fireball. As the universe contracts, the stars burn more rapidly until they finally explode or evaporate. As the universe grows denser, the black holes begin to gobble up everything around them and begin themselves to coalesce until all the black holes finally coalesce into one gigantic black hole which is coextensive with the universe, from which it will never re-emerge. On the other hand, if the density of the universe is insufficient to halt the expansion, as seems more likely, then the galaxies will turn all their gas into stars and the stars will burn out. At 10³⁰ years the universe will consist of 90% dead stars, 9% supermassive black holes, and 1% atomic matter. Elementary particle physics suggests that thereafter protons will decay into electrons and positrons, so that space will be filled with a rarefied gas so thin that the distance between an electron and a positron will be about the size of the present galaxy. At 10¹⁰⁰ years some scientists believe that the black holes themselves will dissipate into radiation and elementary particles. Eventually all the matter in the dark, cold, ever-expanding universe will be reduced to an ultra-thin gas of elementary particles and radiation. Equilibrium will prevail throughout, and the entire universe will be in its final state, from which no change will occur.

Now the question which needs to be asked is this: if, given sufficient time, the universe will reach heat death, then why is it not now in a state of heat death if it has existed for infinite time? If the universe did not begin to exist, then it should now be in a state of equilibrium. Some theorists have suggested that the universe escapes final heat death by oscillating from eternity past to eternity future. But we have already seen that such a model seems to be physically and observationally untenable. But even if we waive those considerations and suppose that the universe does oscillate, the fact is that the thermodynamic properties of this model imply the very beginning of the universe which its proponents seek to avoid. For the thermodynamic properties of an oscillating model are such that the universe expands farther and farther with each successive cycle. Therefore, as one traces the expansions back in time, they grow smaller and smaller. As one scientific team explains, "The effect of entropy production will be to enlarge the cosmic scale, from cycle to cycle. . . . Thus, looking back in time, each cycle generated less entropy, had a smaller cycle time, and had a smaller cycle expansion factor than the cycle that followed it." [25] Novikov and Zeldovich of the Institute of Applied Mathematics of the USSR Academy of Sciences therefore conclude, "The multicycle model has an infinite future, but only a finite past." [26] As another writer points out, the oscillating model of the universe thus still requires an origin of the universe prior to the smallest cycle. [27]

So whatever scenario one selects for the future of the universe, thermodynamics implies that the universe began to exist. According to physicist P.C.W. Davies, the universe must have been created a finite time ago and is in the process of winding down. Prior to the creation, the universe simply did not exist. Therefore, Davies concludes, even though we

may not like it, we must conclude that the universe's energy was somehow simply "put in" at the creation as an initial condition.[28]

We therefore have both philosophical argument and scientific confirmation for the beginning of the universe. On this basis I think that we are amply justified in concluding the truth of premiss (2) that the universe began to exist.

First Premiss

Premiss (1) strikes me as relatively non-controversial. It is based on the metaphysical intuition that something cannot come out of nothing. Hence, any argument for the principle is apt to be less obvious than the principle itself. Even the great skeptic David Hume admitted that he never asserted so absurd a proposition as that something might come into existence without a cause; he only denied that one could *prove* the obviously true causal principle.[29] With regard to the universe, if originally there were absolutely *nothing*-no God, no space, no time-, then how could the universe possibly come to exist? The truth of the principle *ex nihilo, nihil fit* is so obvious that I think we are justified in foregoing an elaborate defense of the argument's first premiss.

Nevertheless, some thinkers, exercised to avoid the theism implicit in this premiss within the present context, have felt driven to deny its truth. In order to avoid its theistic implications, Davies presents a scenario which, he confesses, "should not be taken too seriously," but which seems to have a powerful attraction for Davies.[30] He has reference to a quantum theory of gravity according to which spacetime itself could spring uncaused into being out of absolutely nothing. While admitting that there is "still no satisfactory theory of quantum gravity," such a theory "would allow spacetime to be created and destroyed spontaneously and uncaused in the same way that particles are created and destroyed spontaneously and uncaused. The theory would entail a certain mathematically determined probability that, for instance, a blob of space would appear where none existed before. Thus, spacetime could pop out of nothingness as the result of a causeless quantum transition." [31]

Now in fact particle pair production furnishes no analogy for this radical *ex nihilo* becoming, as Davies seems to imply. This quantum phenomenon, even if an exception to the principle that every event has a cause, provides no analogy to something's coming into being out of nothing. Though physicists speak of this as particle pair creation and annihilation, such terms are philosophically misleading, for all that actually occurs is conversion of energy into matter or vice versa. As Davies admits, "The processes described here do not represent the creation of matter out of nothing, but the conversion of pre-existing energy into material form." [32] Hence, Davies greatly misleads his reader when he claims that "Particles . . . can appear out of nowhere without specific causation" and again, "Yet the world of quantum physics routinely produces something for nothing." [33] On the contrary, the world of quantum physics *never* produces something for nothing.

But to consider the case on its own merits: quantum gravity is so poorly understood that the period prior to 10^{-43} sec, which this theory hopes to describe, has been compared by one wag to the regions on the maps of the ancient cartographers marked "Here there be dragons": it can easily be filled with all sorts of fantasies. In fact, there seems to be no good reason to think that such a theory would involve the sort of spontaneous becoming *ex nihilo* which Davies suggests. A quantum theory of gravity has the goal of providing a theory of gravitation based on the exchange of particles (gravitons) rather than the geometry of space, which can then be brought into a Grand Unification Theory that unites all the forces of nature into a supersymmetrical state in which one fundamental force and a single kind of particle exist. But there seems to be nothing in this which suggests the possibility of spontaneous becoming *ex nihilo*.

Indeed, it is not at all clear that Davies's account is even intelligible. What can be meant, for example, by the claim that there is a mathematical probability that nothingness should spawn a region of spacetime "where none existed before?" It cannot mean that given enough time a region of spacetime would pop into existence at a certain place, since neither place nor time exist apart from spacetime. The notion of some probability of something's coming out of nothing thus seems incoherent.

I am reminded in this connection of some remarks made by A.N. Prior concerning an argument put forward by Jonathan Edwards against something's coming into existence uncaused. This would be impossible, said Edwards, because it would then be inexplicable why just any and everything cannot or does not come to exist uncaused. One cannot respond that only things of a certain nature come into existence uncaused, since prior to their existence they have no nature which could control their coming to be. Prior made a cosmological application of Edwards's reasoning by commenting on the steady state model's postulating the continuous creation of hydrogen atoms *ex nihilo*:

It is no part of Hoyle's theory that this process is causeless, but I want to be more definite about this, and to say that if it is causeless, then what is alleged to happen is fantastic and incredible. If it is possible for objects-objects, now, which really are objects, "substances endowed with capacities"-to start existing without a cause, then it is incredible that they should all turn out to be objects of the same sort, namely, hydrogen atoms. The peculiar nature of hydrogen atoms cannot possibly be what makes such starting-to-exist possible for them but not for objects of any other sort; for hydrogen atoms do not have this nature until they are there to have it, i.e. until their starting-to-exist has already occurred. That is Edwards's argument, in fact; and here it does seem entirely cogent. . . .[34]

Now in the case at hand, if originally absolutely nothing existed, then why should it be spacetime that springs spontaneously out of the void, rather than, say, hydrogen atoms or even rabbits? How can one talk about the probability of any particular thing's popping into being out of nothing?

Davies on one occasion seems to answer as if the laws of physics are the controlling factor which determines what may leap uncaused into being: "But what of the laws? They have to be 'there' to start with so that the universe can come into being. Quantum physics has to exist (in some sense) so that a quantum transition can generate the cosmos in the

first place." [35] Now this seems exceedingly peculiar. Davies seems to attribute to the laws of nature themselves a sort of ontological and causal status such that they constrain spontaneous becoming. But this seems clearly wrong-headed: the laws of physics do not themselves cause or constrain anything; they are simply propositional descriptions of a certain form and generality of what does happen in the universe. And the issue Edwards raises is why, if there were absolutely nothing, it would be true that any one thing rather than another should pop into being uncaused? It is futile to say it somehow belongs to the nature of spacetime to do so, for if there were absolutely nothing then there would have been no nature to determine that spacetime should spring into being.

Even more fundamentally, however, what Davies envisions is surely metaphysical nonsense. Though his scenario is cast as a scientific theory, someone ought to be bold enough to say that the Emperor is wearing no clothes. Either the necessary and sufficient conditions for the appearance of spacetime existed or not; if so, then it is not true that nothing existed; if not, then it would seem ontologically impossible that being should arise out of absolute non-being. To call such spontaneous springing into being out of non-being a "quantum transition" or to attribute it to "quantum gravity" explains nothing; indeed, on this account, there is no explanation. It just happens.

It seems to me, therefore, that Davies has not provided any plausible basis for denying the truth of the cosmological argument's first premiss. That whatever begins to exist has a cause would seem to be an ontologically necessary truth, one which is constantly confirmed in our experience.

Conclusion

Given the truth of premisses (1) and (2), it logically follows that (3) the universe has a cause of its existence. In fact, I think that it can be plausibly argued that the cause of the universe must be a personal Creator. For how else could a temporal effect arise from an eternal cause? If the cause were simply a mechanically operating set of necessary and sufficient conditions existing from eternity, then why would not the effect also exist from eternity? For example, if the cause of water's being frozen is the temperature's being below zero degrees, then if the temperature were below zero degrees from eternity, then any water present would be frozen from eternity. The only way to have an eternal cause but a temporal effect would seem to be if the cause is a personal agent who freely chooses to create an effect in time. For example, a man sitting from eternity may will to stand up; hence, a temporal effect may arise from an eternally existing agent. Indeed, the agent may will from eternity to create a temporal effect, so that no change in the agent need be conceived. Thus, we are brought not merely to the first cause of the universe, but to its personal Creator.

Summary and Conclusion

In conclusion, we have seen on the basis of both philosophical argument and scientific confirmation that it is plausible that the universe began to exist. Given the intuitively obvious principle that whatever begins to exist has a cause of its existence, we have been

led to conclude that the universe has a cause of its existence. On the basis of our argument, this cause would have to be uncaused, eternal, changeless, timeless, and immaterial. Moreover, it would have to be a personal agent who freely elects to create an effect in time. Therefore, on the basis of the *kalam* cosmological argument, I conclude that it is rational to believe that God exists.

NOTES

- [1]G.W. Leibniz, "The Principles of Nature and of Grace, Based on Reason," in *Leibniz Selections*, ed. Philip P. Wiener, The Modern Student's Library (New York: Charles Scribner's Sons, 1951), p. 527.
- [2]Aristotle *Metaphysica* Lambda. I. 982b10-15.
- [3]Norman Malcolm, *Ludwig Wittgenstein: A Memoir* (London: Oxford University Press, 1958), p. 70.
- [4]J.J.C. Smart, "The Existence of God," *Church Quarterly Review* 156 (1955): 194.
- [5]G.W. Leibniz, *Theodicy: Essays on the Goodness of God, the Freedom of Man, and the Origin of Evil*, trans. E.M. Huggard (London: Routledge & Kegan Paul, 1951), p. 127; cf. idem, "Principles," p. 528.
- [6]John Hick, "God as Necessary Being," *Journal of Philosophy* 57 (1960): 733-4.
- [7]David Hume, *Dialogues concerning Natural Religion*, ed. with an Introduction by Norman Kemp Smith, Library of the Liberal Arts (Indianapolis: Bobbs-Merrill. 1947), p. 190.
- [8]Bertrand Russell and F.C. Copleston, "The Existence of God," in *The Existence of God*, ed. with an Introduction by John Hick, Problems of Philosophy Series (New York: Macmillan & Co., 1964), p. 175.
- [9]See William Lane Craig, *The Cosmological Argument from Plato to Leibniz*, Library of Philosophy and Religion (London: Macmillan, 1980), pp. 48-58, 61-76, 98-104, 128-31.
- [10]Wallace Matson, *The Existence of God* (Ithaca, N.Y.: Cornell University Press, 1965), pp. 58-60.
- [11]J.L. Mackie, *The Miracle of Theism* (Oxford: Clarendon Press, 1982), p. 93.
- [12]Quentin Smith, "Infinity and the Past," *Philosophy of Science* 54 (1987): 69.
- [13]Richard Sorabji, *Time, Creation and the Continuum* (Ithaca, N.Y.: Cornell University Press, 1983), pp. 213, 222-3.

[14]Charles Hartshorne, *Man's Vision of God and the Logic of Theism* (Chicago: Willett, Clark, & Co., 1941), p. 37.

[15]G.J. Whitrow defends a form of this argument which does not presuppose a dynamical view of time, by asserting that an infinite past would still have to be "lived through" by any everlasting, conscious being, even if the series of physical events subsisted timelessly (G.J. Whitrow, *The Natural Philosophy of Time*, 2d ed. [Oxford: Clarendon Press, 1980], pp. 28-32).

[16]Mackie, *Theism*, p. 93.

[17]Sorabji, *Time, Creation, and the Continuum*, pp. 219-22.

[18]K.R. Popper, "On the Possibility of an Infinite Past: a Reply to Whitrow," *British Journal for the Philosophy of Science* 29 (1978): 47-8.

[19]R.G. Swinburne, "The Beginning of the Universe," *The Aristotelian Society* 40 (1966): 131-2.

[20]Richard J. Gott, *et.al.*, "Will the Universe Expand Forever?" *Scientific American* (March 1976), p. 65.

[21]Fred Hoyle, *From Stonehenge to Modern Cosmology* (San Francisco: W.H. Freeman, 1972), p. 36.

[22]Beatrice Tinsley, personal letter.

[23]David N. Schramm and Gary Steigman, "Relic Neutrinos and the Density of the Universe," *Astrophysical Journal* 243 (1981): p. 1-7.

[24]Alan Sandage and G.A. Tammann, "Steps Toward the Hubble Constant. VII," *Astrophysical Journal* 210 (1976): 23, 7; see also idem, "Steps toward the Hubble Constant. VIII." *Astrophysical Journal* 256 (1982): 339-45.

[25]Duane Dicus, *et.al.* "Effects of Proton Decay on the Cosmological Future." *Astrophysical Journal* 252 (1982): 1, 8.

[26]I.D. Novikov and Ya. B. Zeldovich, "Physical Processes Near Cosmological Singularities," *Annual Review of Astronomy and Astrophysics* 11 (1973): 401-2.

[27]John Gribbin, "Oscillating Universe Bounces Back," *Nature* 259 (1976): 16.

[28]P.C.W. Davies, *The Physics of Time Asymmetry* (London: Surrey University Press, 1974), p. 104.

[29]David Hume to John Stewart, February, 1754, in *The Letters of David Hume*, ed. J.Y.T. Greig (Oxford: Clarendon Press, 1932), 1:187.

[30]Paul Davies, *God and the New Physics* (New York: Simon & Schuster, 1983), p. 214.

[31]*Ibid.*, p. 215.

[32]*Ibid.*, p. 31.

[33]*Ibid.*, pp. 215, 216.

[34]A.N. Prior, "Limited Indeterminism," in *Papers on Time and Tense* (Oxford: Clarendon Press, 1968), p. 65.

[35]Davies, *God*, p. 217.

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The Proofs for the Existence of God by Imam Ghazali **(From *The Revival of the Religious Sciences*)**

"It is a natural impulse that the intellect dictates that no thing which has a beginning in time could be free of a preceding external cause to have brought it into existence. And the universe has a beginning in time and thus must necessarily need an external cause to have brought it into existence.

As for our statement that something which had a start in time must necessarily have a preceding external cause, it is obvious [that it is true]. This is because every thing that starts in time has a specific time [in which it becomes existent]. And rationally speaking, it is possible for it to have come into existence before the specific time it came into existence or after this specific time. Thus, its occurrence being singled out for that specific time rather than a time before it or after it necessarily points to Someone that chose [this time of occurrence for it].

As for our statement that the universe had a beginning in time, its proof is that the physical bodies of the universe must either be in motion or stillness. And these two things [i.e. motion and stillness] are created in time. And that [essence] which cannot be without [attributes] which begin in time must also have a beginning in time. But, in this above proof, we are making three claims:

The first claim is that physical essences must either be in motion or in stillness. And this is known [to humans] by second nature and necessarily. This fact does not require multi-step thinking and thought. So, whoever can imagine a physical body which is not moving or standing still [at the same time] is riding in ignorance and away from the way of the intellect.

The second claim is that [the attributes of] motion and stillness have beginnings in time. The proof for this is that one of these attributes follows the other in time - one at a time. And this can be seen in all physical essences, the ones we can see and the ones we cannot see. So there is not a physical object in stillness except that the intellect accepts that it can be in motion instead. And there is not a physical object in motion except that the intellect accepts that it can stand still. Thus, the attribute that came into existence [replacing the other one] has a beginning in time for the fact that we saw it come into existence. And the previous replaced attribute has a beginning in time because its going out of existence has been seen. This is because if the previous attribute never began in time, it could never end in time as we will explain later when giving the proof for the endlessness of the Creator High and Holy be He.

The third claim is that if an essence is described by attributes that have beginnings in time, that essence must also have a beginning in time. The proof for this is that if this were not true, every occurrence [of motion or stillness] would have an occurrence before it [which replaced it] without having any first ultimate primary state. If that were true, then the number of occurrences up to our present time would be infinite... And also the

number of rotations/revolutions that a celestial body has completed [up to our time] has to be either odd or even. This is because, [if the number of occurrences were infinite], they would be either both odd and even or neither odd nor even; but these are two mutually exclusive concepts [i.e. oddness and evenness] one of which must [always] be true [for any number]. ... And the upshot of this is since the universe is described by attributes that begin in time, it must also begin in time. Now if we know that it had a beginning in time, then it is necessarily known that it must have had a Creator to have brought it into existence."

Second Proof: (Allah's beginninglessness)

"The second fundamental principle is that Allah Most High never had a beginning in time. He existed in pre-eternity without His existence ever having a start. Rather, He is the first of everything else and before every dead and living being.

The proof for this is that if He had a beginning in time, He would also need someone to bring Him into existence. And His creator would also need someone to bring him into existence.

And this would lead to an infinite regress. And all infinite regresses never come up with anything. Or if we say that this regress ended at an ultimate Creator, He then must have been the First One [we were looking for]. And this First One is Whom we were seeking and we could call Him the Creator of the universe...

Kalam and Islam

Shaykh Nuh Ha Mim Keller

Most of us have met dedicated and otherwise intelligent Muslims who have made themselves "aqida police" to confront the rest of us with their issues in tenets of faith. We are told that this group, or that group, or most Muslims, or we ourselves are kafirs or "non-Muslims" on grounds that are less than familiar, but found in some manual of Islamic creed. Before going to hell on a trick question, or sending someone else there, many Muslims today would do well to cast a glance at the history of traditional Islamic theology (*kalam*), and the real creedal reasons that make one a Muslim or non-Muslim. Nuh Keller examines them in the following address given at the Aal al-Bayt Institute for Islamic Thought in Amman, Jordan.

Few would deny today that the millions of dollars spent worldwide on religious books, teachers, and schools in the last thirty years by oil-rich governments have brought about a sea change in the way Muslims view Islam. In whole regions of the Islamic world and Western countries where Muslims live, what was called Wahhabism in earlier times and termed Salafism in our own has supplanted much of traditional Islamic faith and practice. The very name Ahl al-Sunna wa al-Jama'a or "Sunni orthodoxy and consensus" has been so completely derailed in our times that few Muslims even know it is rolling down another track. In most countries, Salafism is the new "default Islam," defining all religious discourse, past and present, by the understanding of a few Hanbali scholars of

the Middle Ages whose works historically affected the tribes and lands where the most oil has been found. Among the more prominent casualties of this "reform" are the Hanbalis' ancient foes, the Ash'ari and Maturidi schools of Sunni theology.

For over a thousand years Ash'ari-Maturidi theology has defined Sunni orthodoxy. When I visited al-Azhar in Cairo in 1990 and requested for my library the entire syllabus of religious textbooks taught by Azhar High Schools in Egypt, one of the books I was given was a manual on Islamic sects, whose final section defined Ahl al-Sunna as "the Ash'aris, followers of Abul Hasan al-Ash'ari, and the Maturidis, followers of Abu Mansur al-Maturidi" (Mudhakkara al-firaq, 14).

This is not an isolated assessment. When the Imam of the late Shafi'i school Ibn Hajr al-Haytami was asked for a fatwa identifying *ashab al-bida'* or heretics, he answered that they were "those who contravene Muslim orthodoxy and consensus (Ahl al-Sunna wa al-Jama'a): the followers of Sheikh Abul Hasan al-Ash'ari and Abu Mansur al-Maturidi, the two Imams of Ahl al-Sunna" (al-Fatawa al-hadithiyya, 280).

Few Muslims today know anything about the Ash'ari and Maturidi schools or their relation to Islam. So I shall discuss their theology not as history, but as orthodoxy, answering the most basic questions about them such as: What are the beliefs of Sunni Islam? Who needs rational theology anyway? And what relevance does it have today? We mention only enough history to understand what brought it into being, what it said, what it developed into, what its critics said of it, and what the future may hold for it.

I.

Islamic theology is based on an ethical rather than speculative imperative. Many Qur'anic verses and hadiths show that *iman* or "true faith" is obligatory and rewarded by paradise, and that *kufr* or "unbelief" is wrong and punished by hell. Every Muslim must know certain matters of faith, be convinced of them himself, and not merely imitate others who believe in them. The faith God requires of man is expressed in the words:

"The Messenger believes in what has been revealed to him from his Lord, as do the believers. Each believes in Allah, His angels, His books, and His messengers. We do not differentiate between any of His messengers, and they say: We hear and obey, O Lord grant us Your forgiveness, and unto You is the final becoming" (Qur'an 2:285).

This verse defines the believer as someone who believes in the Prophet's revelation (Allah bless him and give him peace) in general and in detail. The details have to be known to be believed, for as Allah says, "Allah does not tax any soul except in its capacity" (Qur'an 2:286), and it is not in one's capacity to believe something unless it is both known to one and not unbelievable, meaning not absurd or self-contradictory. Moreover, "belief" means holding something to be true, not merely believing what one's forefathers or group believe, such that if they handed down something else, one would believe that instead. That is, "belief" by blind imitation without reference to truth or

falsity is not belief at all. Allah specifically condemns those who reject the message of Islam for this reason, by saying:

"When they are told: 'Come to what Allah has revealed, and to the Messenger,' they say, 'It suffices us what we found our forefathers upon' – But what if their forefathers knew nothing, and were not guided?"
(Qur'an 5:104).

In short, Islamic *kalam* theology exists because belief in Islam demands three things:

- (1) to define the contents of faith;
- (2) to show that it is possible for the mind to accept, not absurd or inconsistent;
- (3) and to give reasons to be personally convinced of it.

"Very well," one may say, "these are valid aims, but what proof is there that rational argument, the specific means adopted by traditional theology, is valid or acceptable in matters of faith?" – to which the first answer is that the Qur'an itself uses rational argument; while the second is that nothing else would have met the historical threat to Islam of Jahm and the Mu'tazila, the aberrant schools who were obligatory for Ash'ari and Maturidi to defeat.

The Qur'anic proof is the verse

"Allah has not begotten a son, nor is there any god besides Him, for otherwise, each would have taken what they created and overcome the other – how exalted is Allah above what they describe!" (Qur'an 23:91), whose premises and conclusion are: (a) a "god" means a being with an omnipotent will; (b) the omnipotent will of more than one such being would impose a limit on the omnipotence of the other, which is absurd; (c) God is therefore one, and has not begotten a son, nor is there any god besides Him.

A second proof is in the Qur'anic verse

"Were there other gods in [the heavens and earth] besides Allah, [the heavens and earth] would have come to ruin" (Qur'an 21:22), whose argument may be summarized as:

- (a) a "god" means a being with an omnipotent will, to whom everything in the universe is thus subject;
- (b) if the universe were subject to a number of omnipotent gods, its fabric would be disrupted by the exercise of their several wills, while no such disruption is evident in the universe;
- (c) God is therefore one, and there are no other gods.

The historical proof for rational argument – unmentioned in *kalam* literature but perhaps even more cogent than either of the Qur'anic proofs just mentioned – is that nothing else could meet the crisis that Ash'ari and Maturidi faced; namely, the heretical mistakes of the two early proto-schools of `aqida, the Jahmiyya and the Mu'tazila. We say "nothing

else" because a chess player cannot be defeated by playing checkers, and the only way to refute the arguments of the Jahmiyya and of the Mu'tazila was by intellectual means. Mere political suppression would have but hardened their party spirit into sectarian obstinacy, so it was necessary to defeat them with rational argument.

II.

The challenge facing Abul Hasan al-Ash'ari and Abu Mansur al-Maturidi was thus threefold: (1) to define the tenets of faith of Islam and refute innovation; (2) to show that this faith was acceptable to the mind and not absurd or inconsistent; and (3) to give proofs that personally convinced the believer of it. Though not originally obligatory itself, *kalam* became so when these aims could not be accomplished for the Muslim polity without it, in view of the Islamic legal principle that "whatever the obligatory cannot be accomplished without is itself obligatory." As we have seen, the specific form of the response, rational argument, was used by the Qur'an, mandated by human reason, and necessitated by history. We now turn to the concrete form of the response, which was the traditional tenets of faith (*`aqida*) of the two schools, after which we will look at how the response was conditioned by their historical predecessors, the Jahmiyya and Mu'tazila schools.

III.

The heart of traditional *kalam* theology is that – after the *shahada* "there is no god but Allah and Muhammad is the Messenger of Allah," and after acknowledging Allah's infinite perfections and transcendence above any imperfection – it is obligatory for every Muslim to know what is (a) necessarily true, (b) impossible, or (c) possible to affirm of both Allah and the prophets (upon whom be peace). These three categories traditionally subsume some fifty tenets of faith.

(a) The twenty attributes necessarily true of Allah are His (1) existence; (2) not beginning; (3) not ending; (4) self-subsistence, meaning not needing any place or determinant to exist; (5) dissimilarity to created things; (6) uniqueness, meaning having no partner (*sharik*) in His entity, attributes, or actions; (7) omnipotent power; (8) will; (9) knowledge; (10) life; (11) hearing; (12) sight; (13) speech; such that He is (14) al-mighty; (15) all-willing; (16) all-knowing; (17) living; (18) all-hearing; (19) all-seeing; (20) and speaking – through His attributes of power, will, knowledge, life, hearing, sight, and speech, not merely through His being.

(b) The twenty attributes necessarily impossible of Allah (21-40) are the opposites of the previous twenty, such as nonexistence, beginning, ending, and so on.

(c) The one attribute merely possible of Allah (41) is that He may create or destroy any possible thing.

The attributes of the prophets (upon whom be peace) similarly fall under the three headings:

(a) The four attributes necessarily true of the prophets (42-45) are telling the truth, keeping their trust, conveying to mankind everything they were ordered to, and

intelligence.

(b) The four attributes necessarily impossible of them (4649) are the opposites of the previous four, namely lying, treachery, concealing what they were ordered to reveal, and feeble-mindedness.

(c) The one attribute possible of them (50) is any human state that does not detract from their rank, such as eating, sleeping, marrying, and illnesses not repellant to others; although Allah protected them from every offensive physical trait and everything unbecoming them, keeping them from both lesser sins and enormities, before their prophethood and thereafter.

When one reflects on these fifty fundamental tenets of faith, which students memorized over the centuries, it is not difficult to understand why Ash'ari-Maturidi *kalam* was identified with Islamic orthodoxy for over a millennium; namely, they are the tenets of the Qur'an and sunna.

IV.

We find however in the history of *kalam* that authors sometimes urged the distinctive doctrines of their school, particularly against opponents, as if they were basic principles of Islam. Now, "basic principles" are what every Muslim must know and believe as a Muslim, while "distinctive doctrines" may include virtually any point that controversy has brought into prominence. The two are not necessarily the same.

A number of points of *`aqida* were not originally central to the faith of Islam, but entered the canon of "orthodoxy" by celebrity acquired through debate among schools. To take but one point for example: the question of "whether man is obligated to know God by revelation or whether by human reason alone" has been treated by Ahl al-Sunna, Mu'tazila, and Jahmiyya theologians as a point of *`aqida*, though it does not personally concern one single Muslim – for all Muslims know Allah through the revelation of the Qur'an – but rather concerns Allah's own judgement of human beings who have never been reached by the Islamic revelation, a judgement Allah is unlikely to consult anyone else about, whether believer or unbeliever. Something so devoid of practical consequences for Muslims could not have become prominent except through faction and debate.

Treating distinctive doctrines as basic tenets of faith, however, was not always the result of mere controversy, but because Sunni theologians had to distinguish truth from falsehood, the latter including the many mistakes of the Mu'tazila and Jahmiyya. All falsehoods are rejected by Islam, and in matters of faith most are serious sins, but some are more crucial than others. In other words, in the spectrum from right to wrong beliefs, there are four main categories:

- (1) central beliefs that one must hold or one is not a Muslim;
- (2) beliefs that are obligatory to hold, but denying them does not make one a non-Muslim;
- (3) beliefs that are unlawful to hold, but affirming them

does not make one a non-Muslim;
(4) and beliefs that no one can hold and remain a Muslim.

For many Muslims today, greater knowledge of these four necessary distinctions would bring about greater tolerance, and teachers of Islamic theology must explain that while "orthodoxy" reflects what Sunnis believe, only some of their issues spell the difference between faith and unbelief, while others are things that Muslims may disagree about and still remain Muslim.

To say it again, a particular point of *`aqida* could be contrary to another, even heretical school of thought and hotly debated, yet not directly concern *kufir* or *iman*, faith or unfaith. Indeed, the longer and harder the historical debate, the less likely the point under discussion is a matter of salvation or damnation, for it is inconsistent with Allah's mercy and justice to create men of widely varying intelligence and then make their salvation depend on something that even the most brilliant of them cannot agree upon. Fakhr al-Din al-Razi (d. 606/1210) acknowledges this by writing:

One should know that theologians have had considerable difficulty defining *kufir* (unbelief) ... *Kufir* consists in denying the truth of anything the Prophet (Allah bless him and give him peace) is necessarily known to have said. Examples include denying the Creator's existence, His knowledge, power, choice, oneness, or perfection above all deficiencies and infirmities. Or denying the prophethood of Muhammad (Allah bless him and give him peace), the truth of the Qur'an, or denying any law necessarily known to be of the religion of Muhammad (Allah bless him and give him peace), such as the obligatoriness of prayer, of zakat, fasting, or pilgrimage, or the unlawfulness of usury or wine. Whoever does so is an unbeliever because he has disbelieved the Prophet (Allah bless him and give him peace) about something necessarily known to be of his religion.

As for what is only known by inference from proof to be his religion, such as "whether God knows by virtue of His attribute of knowledge or rather by virtue of His entity," or "whether or not He may be seen [in the next life]," or "whether or not He creates the actions of His servants"; we do not know by incontestably numerous chains of transmission (*tawatur*) that any of these alternatives has been affirmed by the Prophet (Allah bless him and give him peace) instead of the other. For each, the truth of one and falsity of the other is known only through inference, so neither denial nor affirmation of it can enter into actual faith, and hence cannot entail unbelief.

The proof of this is that if such points were part of faith, the Prophet (Allah bless him and give him peace) would not have judged anyone a believer until he was sure that the person knew the question. Had he done such a thing, his position on the question would have been known to everyone in Islam and conveyed by many chains of transmission. Because it has not, it is clear that he did not make it a condition of faith, so knowing it is not a point of belief, nor denying it unbelief.

In light of which, no one of this Umma is an unbeliever, and we do not consider anyone an unbeliever whose words are interpretable as meaning anything besides. As for beliefs

not known except through hadiths related by a single narrator, it seems plain that they cannot be a decisive criterion for belief or unbelief. That is our view about the reality of unbelief (Mafatih al-ghayb, 2.42).

Such breadth of perspective was not unique to Razi, the lifelong defender of Ahl al-Sunna `aqida and implacable foe of its opponents, but was also the view of Imam Ash'ari himself. Dhahabi says:

Bayhaqi relates that he heard Abu Hazim al-'Abdawi say that he heard Zahir ibn Ahmad al-Sarkhasi say, "When death came to Abul Hasan al-Ash'ari in my home in Baghdad, he called me to him and I came, and he said, 'Be my witness: I do not declare anyone an unbeliever who prays towards the qibla, for all direct themselves to the One who alone is worshipped, while all this [controversy] is but different ways of speaking" [\[1\]](#) (Siyar al-a'lam, 15.88).

These passages show that both Ash'ari and Razi, the early and late Imams of their school, implicitly distinguished between the central `aqida of Islam, and the logical elaboration upon it by traditional theology. Clearly, their life work brought them to the understanding that *kalam* theology had produced a body of knowledge that was, if important and true, nevertheless distinct from the `aqida that is obligatory for every Muslim to believe in order to be Muslim. The difference however, between `aqida or "personal theology," and *kalam* or "discursive theology" was perhaps most strikingly delineated by Imam Ghazali (d. 505/1111).

V.

According to Ghazali, *kalam* theology could not be identified with the `aqida of Islam itself, but rather was what protected it from heresy and change. He wrote about his long experience in studying *kalam* in a number of places in his Ihya' 'Ulum al-Din, one of them just after his beautiful `aqida al-Qudsiyya or "Jerusalem Creed." After mentioning the words of Imam Shafi'i, Malik, Ahmad, and Sufyan al-Thawri that *kalam* theology is unlawful – by which they meant the Mu'tazilite school of their times, the only example they knew of – Ghazali gives his own opinion on discursive theology, saying:

There is benefit and harm in it. As to its benefit, it is lawful or recommended or obligatory whenever it is beneficial, according to the circumstances. As to its harm, it is unlawful whenever and for whomever it is harmful.

Its harm is that it raises doubts in minds and shakes a student's tenets of faith from certitude and conviction at the outset, while there is no guarantee that he will ever get it back again through proofs, individuals varying in this. That is its harm to faith.

It has another bad effect, namely that it hardens heretics' attachment to their heresy and makes it firmer in their hearts by stirring them up and increasing their resolve to persist. This harm, however, comes about through bigotry born of argument, which is why you see the ordinary unlearned heretic fairly easy to dissuade from his mistakes through affability; though not if he has grown up in a locale where there is arguing and bigotry, in which case if all mankind from beginning to end were to join together, they would be unable to rid his heart of wrong ideas. Rather, his prejudice, his heatedness, and his

loathing for his opponents and their group has such a grip over his heart and so blinds him to the truth that if he were asked, "Would you like Allah Most High Himself to raise the veil so you can see with your own eyes that your opponent is right?" he would refuse, lest it please his opponent. This is the incurable disease that plagues cities and people: the sort of vice produced by bigotry when there is argument. This also is of the harm of *kalam*.

As for its benefit, it might be supposed that it is to reveal truths and know them as they truly are. And how farfetched! *kalam* theology is simply unable to fulfill this noble aim, and it probably founders and misguides more than it discovers or reveals. If you had heard these words from a hadith scholar or literalist, you might think, "People are enemies of what they are ignorant of." So hear them instead from someone steeped in *kalam* theology, who left it after mastering it in depth and penetrating into it as far as any scholar can, and who then went on to specialize in closely related fields, before realizing that access to the realities of true knowledge was barred from this path. By my life, theology is not bereft of revealing and defining the truth and clarifying some issues, but it does so rarely, and about things that are already clear and almost plain before learning its details.

Rather, it has one single benefit, namely guarding the ordinary man's faith we have just outlined [the Jerusalem Creed] and defending it by argument from being shaken by those who would change it with heresies. For the common man is weak and susceptible to the arguments of heretics even when false; and the false may be rebutted by something not in itself especially good; while people are only responsible for the creed we have presented above (Ihya' 'Ulum al-Din, 1.86).

In this and other passages of Ihya' 'Ulum al-Din, al-Munqidh min al-Dalal, and Faysal al-Tafriqa which summarize his life experience with *kalam* theology, Ghazali distinguishes between several things. The first is *'ilm al-'aqa'id* or the knowledge of basic tenets of faith, which we have called above "personal theology," and which he deems beneficial. The second is what we have called "discursive theology," or *kalam* properly speaking, the use of rational arguments to defeat heretics who would confuse common people about tenets of faith.

Ghazali believes this is valid and obligatory, but only to the extent needed. The third we may call "speculative theology," which is philosophical reasoning from first principles about God, man, and being, to discover by deduction and inference the way things really are. This Ghazali regards as impossible for *kalam* to do.

VI.

The scholars of *kalam* certainly did not agree with Ghazali on this latter point, and history attests to their continued confidence in it as a medium of discovery, producing what has subsequently been regarded by almost everyone as a period of excess in *kalam* literature. Taj al-Din al-Subki (d. 771/1370) who was himself steeped in *kalam* theology wrote:

Upon reflection – and no one can tell you like someone who truly knows – I have not found anything more harmful to those of our times or more ruinous to their faith than reading books of *kalam* written by latter-day scholars after Nasir al-Din al-Tusi and others. If they confined themselves instead to the works of the Qadi Abu Bakr al-

Baqillani, the great Abu Ishaq al-Isfarayini, the Imam of the Two Sanctuaries Abu al-Ma'ali al-Juwayni, and others of those times, they would have nothing but benefit. But truly I believe that whoever ignores the Qur'an and sunna [defended by these scholars] and instead occupies himself with the debates of Ibn Sina and those of his path – leaving the words of the Muslims: "Abu Bakr and 'Umar (Allah Most High be well pleased with them) said," "Shafi'i said," "Abu Hanifa said," "Ash'ari said," "Qadi Abu Bakr said"; and instead saying: "The Sovereign Sage (al-Shaykh al-Ra'is) said" meaning Ibn Sina, or "The Great Master (al-Khawaja) Nasir said," and so on – that whoever does so should be whipped and paraded through the marketplaces with a crier proclaiming: "This is the punishment of whoever leaves the Qur'an and sunna and busies himself with the words of heretics" (Mu'id al-ni'am, 7980).

For Subki, it showed how far *kalam* had strayed for latter-day authors to call heterodox figures such as Ibn Sina[2] or Tusi[3] "Sovereign Sage" or "Great Master" in works supposedly explaining the faith of Islam. The reason he found nothing "more harmful to those of our times or more ruinous to their faith than reading the books of *kalam* theology written by latter-day scholars" was that they had vitiated the very reason for *kalam*'s existence: to defend the truth. By widening its universe to include heretics and giving them titles of authority, *kalam* literature had become a compendium of wrong ideas.

To summarize, although Sunni theology first defined orthodoxy and rebutted heresy, it afterwards swelled with speculative excesses that hearkened back those of the Jahmiyya and Mu'tazila. At this juncture, it met with criticism from figures who knew it too well to accept this, such as Imam Ghazali, Taj al-Subki, Nawawi, and others, whose view was that *kalam* was a medicine useful in moderation, but harmful in overdose. Their criticisms were valid, for when theology obeys a speculative rather than an ethical imperative, it ceases to give guidance in man's relationship to God, and hence is no longer a science of the *din*.

What has been forgotten today however by critics who would use the words of earlier Imams to condemn all *kalam*, is that these criticisms were directed against its having become "speculative theology" at the hands of latter-day authors. Whoever believes they were directed against the `aqida or "personal theology" of basic tenets of faith, or the "discursive theology" of rational *kalam* arguments against heresy is someone who either does not understand the critics or else is quoting them disingenuously.

We conclude our remarks with a glance at *kalam*'s significance today. What does traditional theology have to offer contemporary Muslims?

VII.

With universal comparison, the door today is open to universal skepticism, not only about particular religions, but belief in God and in religion itself. It is hence appropriate to consider the legacy of *kalam* proofs for the existence of God.

At the practical level, most people who believe in God do not do so because of philosophical arguments, but because they feel a presence, inwardly and outwardly, that

uplifts hearts, answers prayers, and solves their problems. Yet Muslims and others find their faith increasingly challenged by an atheistic modern world. The question becomes, can traditional *kalam* arguments answer modern misgivings?

Now, philosophy as taught today in many places dismisses traditional proofs for the existence of God as tautological, saying that they smuggle in the conclusions they reach by embedding them in the premises. A young American Muslim philosophy student asked me, "How can we believe with certainty that there is a God, when logically speaking there is no argument without holes in it?" He mentioned among the arguments of *kalam* that (a) the world is *hadith* or "contingent"; (b) everything contingent requires a *muhdith* or "cause"; (c) if there is no first cause that is "necessary" or uncaused, this entails an infinite regress, which is absurd; and (d) therefore the world must ultimately have an uncaused or "necessary" cause as its origin.

While scholars like Majid Fakhry in his *History of Islamic Philosophy* point out that saying that "the 'contingent' (*hadith*) requires a 'cause' (*muhdith*)" is a mere play on words, one can answer that while the form of this argument does contain a play on words, if we penetrate to the content of these words, they express an empirical relationship so basic to our experience that science regards it as axiomatic. That is, to provide a scientific explanation for something is to suggest a probable cause for it, and then present evidence for the particular cause being adduced as its "explanation."

In cosmology, for example, the origin of the universe must be explained causally, and most scientists currently believe that the universe began about fifteen billion years ago in a cosmic cataclysm they term the Big Bang. And yet this most interesting of all events, indeed the effective cause of all of them, is somehow exempted from the scientific dictum that to explain something is to suggest a cause for it. Why the Big Bang? What urged its being rather than its nonbeing? This is no trivial enigma, still less a play on words. If to explain an event is to find a cause for it, then the Big Bang is not a scientific "explanation" for the origin of the universe in any ordinary sense of the word. Here, the *kalam* argument that the contingent must return to the necessary is still relevant today, and has been cited by name in works such as Craig and Smith's *Theism, Atheism, and Big Bang Cosmology*. The prevailing cosmological view among scientists is that the universe did have a beginning, and this requires an explanation.

Another traditional *kalam* argument vitally relevant to the teaching of Islam is the "argument from design," namely that the complexity of many natural phenomena is far more analogous to our own intentionally planned processes and productions than to ordinary random events. That is, the perfection of design in nature argues for the existence of a designer. As in the previous example, to teach this argument directly from *kalam* would seem to many intellectual Muslims today, particularly those scientifically literate, to be a mere tautology or play on words. But when filled in with examples drawn from scientific literature, its cogency becomes plain.

Examples abound. One of them forms the central thesis of the work *Just Six Numbers* by the British Astronomer Royal Martin Rees of Cambridge. He has determined that the

fabric of the universe depends on the coincidence of six basic physical number ratios, two of them related to basic forces, two fixing the size and texture of the universe, and two fixing the properties of space itself. These six numbers, in Reese's own words, "constitute a 'recipe' for a universe. Moreover, the outcome is sensitive to their values: if any of them were to be untuned [the slightest bit different in numerical value], there would be no stars and no life" (Just Six Numbers, 4). If any of these six numbers were dependent on the others, the fact that they allow for the existence of the universe would be less astonishing, but none of them can be predicted from the values of the others, and each number compounds the unlikelihood of the others. The only consequence mathematically inferable from this is that the universe that we know and live in is unlikely to an absurd degree. The statistical probability of the confluence of just these numbers is, to borrow the expression of astronomer Hugh Ross, about as likely as "the possibility of a Boeing 747 aircraft being completely assembled as a result of a tornado striking a junkyard" (Discover, 21, no. 11).

The shocking improbability of ourselves and our universe is no play on words, and shows the relevance of the *kalam* argument for the existence of God from design.

Another example of the argument from design is the origin of life, especially with what is known today, after the advent of the electron microscope, about the tens of thousands of interdependent parts that compose even the simplest one-celled organism known. The probability of such an entity not only assembling itself, but also simultaneously assembling a viable reproductive apparatus to produce another equally complex living reality does not urge itself very strongly according to anything we know about empirical reality. That is, the origin of perfectly articulated functional complexity argues for a design, and a design argues for the existence of a designer.[\[4\]](#)

A third example of the relevance of the argument from design is what physicist Paul Davies has called in his *Mind of God* "the unreasonable effectiveness of mathematics" in describing and predicting the phenomena of the physical world. The "unreasonableness" in it is that if, as scientism avers, the structure of our brains that determines the way we view reality is only an evolutionary accident, which would presumably be much different if we were, say, a race of aliens who had evolved on different planet, why is it that so much of the mathematics that was first worked out as an abstract exercise in the minds of pure mathematicians has been so spectacularly effective in explaining the physical world? If man were hundreds of times larger than he is or hundreds of times smaller, his perceptual reality would be so completely different that he might well not have developed the integers or other mathematical tools that he did. But because man has turned out just so, by an uncannily improbable coincidence, the mathematical rules formulated by pure mathematicians – which should be a mere accident of man's evolutionary and cultural history – turn out, often years after their discovery, to be exactly the same rules nature is playing by.

The enigma here is that, while there is a distinct evolutionary advantage in knowing the world by direct empirical observation, we have been equipped with a second faculty, of no selective evolutionary advantage at all, which can incorporate quantum and relativistic

mathematical systems into our mental model of the world. For Davies these facts suggest that a conscious Being has encoded this ability within humanity, knowing that one day they would reach a degree of comprehension of the universe that will bring them to the realization that the unreasonable correspondence of nature to pure thought is not a coincidence, but the outcome of a great design.

There are many other examples of the argument from design, particularly in the complexity of symbiotic and parasitic relationships between species of the natural world, which, if too long to detail here, also strongly attest to the relevance of the *kalam* argument for the existence of God.

VIII.

As for the role of *kalam* in defending Islam from heresies, Jahm and the Mu'taziites are certainly less of a threat to orthodoxy today than scientism, the reduction of all truth to statements about quantities and empirical facts. The real challenge to religion today is the mythic power of science to theologize its experimental method, and imply that since it has not discovered God, He must not exist.

Here, the task of critique cannot be relegated to traditional proofs drawn from the literature of a prescientific age. Rather, it belongs to scientifically literate Muslims today to clarify the provisional nature of the logic of science, and to show how its epistemology, values, and historical and cultural moment condition the very nature of questions it can ask – or answer.

Omniscience is not a property of science. In physics today, at the outset of the twenty-first century, we do not yet understand what gives physical matter its mass, its most basic property. In taxonomy, estimates vary, but probably less than 3 percent of the living organisms on our own planet have been named or identified. In human fertility, many fundamental mechanisms remain undiscovered. Even our most familiar companion, human consciousness, has not been scientifically explained, replicated, or reduced to physical laws. In short, though we do not base our faith on the current state of science, we should realize that if science has not discovered God, there is a long list of other things it has not discovered that we would be ill-advised to consider nonexistent in consequence.

In short, attacks today on religion by scientism should be met by Muslims as Ash'ari and Maturidi met the Mu'tazilites and Jahmites in their times: with a dialectic critique of the premises and conclusions thoroughly grounded in their own terms. The names that come to mind in our day are not Ash'ari, Baqillani, and Razi, but rather those like Huston Smith in his *Beyond the Post-Modern Mind*, Charles Le Gai Eaton in his *King of the Castle*, Keith Ward in his *God, Chance, and Necessity*, and even non-religious writers like Paul Davies in *The Mind of God* and John Horgan in his *The End of Science* and *The Undiscovered Mind*. Answering reductionist attacks on religion is a communal obligation, which Muslims can only ignore at their peril. This too is of the legacy of *kalam*, or the "aptness of words to answer words."

IX.

A final benefit of *kalam* is to realize from its history that there is some range and latitude in the beliefs of one's fellow Muslims.

In an Islamic world growing ever younger with the burgeoning population, there is a danger that those quoting Qur'anic verses and hadiths without a grasp of the historical issues will stir up the hearts of young Muslims against each other in sectarian strife. People like to belong to groups, and the positive benefits of bonding with others in a group may be offset by bad attitudes towards those outside the group. The Wahhabi movement for example, recast in our times as Salafism, began as a Kharijite-like sect that regarded nonmembers, including most of the Umma, as kafirs or unbelievers. Here, a working knowledge of the history and variety of schools of Islamic theology would do much to promote tolerance.

The figures we have cited, from Ash'ari to Razi to Dhahabi to Ibn Taymiya, were men who passionately believed that there was a truth to be known, and that it represented the beliefs of Islam, and that it was but one. They believed that those who disagreed with it were wrong and should be engaged and rebutted. But they did not consider anyone who called himself a Muslim to be a *kafir* as long as his positions did not flatly deny the truthfulness of the Prophet (ﷺ Allah bless him and give him peace). Imam Ghazali says in *Faysal al-tafriqa*: "Unbelief" (*kufr*) consists in asserting that the Prophet (ﷺ Allah bless him and give him peace) lied about anything he conveyed, while "faith" is believing that he told the truth in everything he said (*Faysal al-tafriqa*, 78).

There is wide scholarly consensus on this tolerance of Islam, and we have heard from Imam Ash'ari that he did not consider anyone who prayed towards the qibla to be an unbeliever, from Razi that he did not consider anyone to be an unbeliever whose words could possibly mean anything besides, and from Ibn Taymiya that he considered everyone who faithfully prays with ablution to be a believer. None of them believed that a Muslim can go to hell on a technicality.

X.

To summarize everything we have said, the three main tasks of *kalam* consist in defining the contents of faith, showing that it contradicts neither logic nor experience, and providing grounds to be personally convinced of it, and these three are as relevant today as ever.

First, the substantive knowledge of the `aqida each of us will die and meet Allah upon will remain a lasting benefit as long as there are Muslims.

Second, demographers expect mankind to attain close to universal literacy within fifty years. Members of world faiths may be expected to question their religious beliefs for coherence, logicity, applicability, and adequacy, and the work of Ahl al-Sunna scholars will go far to show that one does not have to hang up one's mind to enter Islam.

Third, universal communication will make comparisons between religions inevitable. Blind imitation of ethnic religious affiliation will become less relevant to people around the globe, and I personally believe Islam has stronger theological arguments for its truth than other world religions. Indeed, Islam is a sapiential religion, in which salvation itself rests not on vicarious atonement as in Christianity, or on ethnic origin as in Judaism, but on personal knowledge. Whoever knows that there is no god but God and that Muhammad is the Messenger of God is by that very fact saved.

So in the coming century, three areas of *kalam*'s legacy will remain especially relevant for Muslims: first, the proofs for the existence of God from necessity and design, second, the rebuttal of the heresy of scientistic reductionism and atheism, and third, promoting tolerance among Muslims. The latter is one of the most important lessons that the history of *kalam* can teach; that if Muslims cannot expect to agree on everything in matters of faith, they can at least agree on the broad essentials, and not to let their differences descend from their heads to their hearts.

Notes

[1](#) Dhahabi goes on: "This is my own religious view. So too, our sheikh Ibn Taymiya used to say in his last days, 'I do not consider anyone of this Umma an unbeliever,' and he would relate that the Prophet (Allah bless him and give him peace) said, 'No one but a believer faithfully performs ablution' [Ahmad, 5.82: 22433. S], saying, 'So whoever regularly attends prayers with ablution is a Muslim'" (Siyar al-a'lam, 15.88).

[2](#) Ibn Sina, the "Sovereign Sage" referred to by latter-day *kalam* authors here, had a number of heterodox beliefs. First, he believed that the world is beginninglessly eternal, while Muslims believe that Allah created it after it was nothing; second, he believed that Allah knows what is created and destroyed only in a general way, not in its details, while Muslims believe that Allah knows everything; and third, he held that there is no bodily resurrection, while Muslims emphatically affirm in it. Taj al-Subki's above passage continues: "Is he [such a latter-day *kalam* author] not ashamed before Allah Most High to espouse the ideas of Ibn Sina and praise him – while reciting the word of Allah "Does man not think We shall gather together his bones? Indeed, We are well able to produce even his index finger" (Qur'an 75:7) – and mention in the same breath Ibn Sina's denial of bodily resurrection and gathering of bones?" (Mu'id al-ni'am, 80). Imam Ghazali, despite his magisterial breadth of perspective in `aqida issues, held it obligatory to consider Ibn Sina a non-Muslim (*kafir*) for these three doctrines (al-Munqidh min al-dalal, 4445, 50).

[3](#) The "Great Master" Nasir al-Din al-Tusi was the traitor who betrayed Baghdad and its whole populace to their Mongol slaughterers out of sectarian malice against the Sunni caliphate. In tenets of faith, he introduced philosophy into Shiism, reviving Ibn Sina's thought in a Twelver Shiite matrix, and authored Tajrid al-'aqa'id, the preeminent work of Shiite dogma to this day, in which he describes man as "the creator of his works" (Encyclopedia of Religion, 6.324, 7.316, 13.265) – while the Qur'an tells us that "Allah created you and what you do" (Qur'an 37:96).

[4](#) The Associated Press on Thursday 9 December 2004 carried the story "Famous Atheist Now Believes in God," in which religion writer Richard Ostling mentions that a British

philosophy professor who has been a leading champion of atheism for more than a half-century has now changed his mind. "At age 81, after decades of insisting belief is a mistake, Antony Flew has concluded that some sort of intelligence or first cause must have created the universe. 'A super-intelligence is the only good explanation for the origin of life and the complexity of nature,' Flew said in a telephone interview from England." He also recently said that biologists' investigation of DNA "has shown, by the almost unbelievable complexity of the arrangements which are needed to produce [life], that intelligence must have been involved" (U.S. National – AP Website, 9 December 2004).

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Reasons for Rejecting Allah's Existence from Shaykh Abul Qanit al-Hassani, the Guiding Helper Foundation

So in the end, we would say that those that find fault with the logical arguments (even if they be as qualified as Immanuel Kant) have done one of the following:

- a) Failed to understand how the various arguments fit together. For example, Immanuel Kant rejected the "primary mover" argument in his Critique of Pure Reason because he claimed that the causes and effects we see are within the same system whereas the primary mover is outside the system and there is no direct link between the two. [As a side note, his claim has been blindly accepted and propagated for over two centuries now by both non-Muslim and contemporary Muslim Academics - up until the point that any "qualified" Academic today "knows" that using logic to prove the existence of a Supreme Being is an outdated and already "disproved" method)]. This shows their lack of understanding of how the primary mover argument fits in with the argument of Allah's unity. As the conclusions of the arguments for Allah's unity show that all causes and effects that we see are **directly** produced by Allah. Otherwise, we would be assigning to the apparent causes the power to create the effects - while it is known through the arguments for Allah's unity in His actions that both the causes and effects (even those we see today) are directly created by Allah.

- b) Did not become extremely qualified in the science of Logic as conveyed by the Muslim Logicians and summarized in ‘Abd al-Rahman al-Akhdari’s Sullam al-Munawraqi. - And Therefore were unable to understand and interpret the arguments.
- c) Were presented with non-detailed arguments (with missing premises) and concluded that the premises do not follow a logical order.
- d) Were presented with the arguments in a format that is very difficult to understand and interpret -and have thus misinterpreted them.
- e) Were presented the arguments by someone who made mistakes in his arguments. In other words, they learned a wrong argument and then concluded that proving Allah’s existence through logic is impossible.
- f) Have blindly accepted the post-Kant view that logic and faith do not fit together - and they simply point to his lengthy arguments as a proof for their belief expecting people to accept them.
- g) Hold a view of time that does not correspond to reality nor to empirical observation. For example, they believe in circular time (like some religions of the East).

There are other reasons also, such as arrogance (e.g., “Well, we Westerners (or Western-style educated Muslims) are far more advanced than those backward camel-drivers that wrote lengthy Arabic books.”).

Start of proof:

Please note that this is only one of many proofs which can be constructed.

Definition of time:

Although most people understand what space is (at least on 3 dimensions), most people only have vague ideas about what time is. Time is the measurement of the movement of a physical body with respect to a reference point.

or we can say:

Time is the measurement of a fluctuation of a sensory phenomenon.

or we can say:

Time is the measurement of a change between the states of something that is perceived.

We can come up with many similar statements, but the crux the matter is the same in that it states:

- a) It is only through the movement of physical bodies relative to a reference point that we can understand the concept of time.
- b) All “time-keepers” ancient and modern work on this principle: (1) the hourglass uses the movement of sand grains, (2) the water clock, the movement of water, (3) the dial-clock, the movement of the gears that move the dials, (4) the solar clock, the rotation of the earth, (5) digital wristwatches, the movement of electrical impulses through wire, semiconductors, and crystals, (6) the most advanced clock (the cesium clock), the orbit of electrons around the cesium atom, (7) it has been also recently discovered that the human body has its own time-clock (which resembles an hourglass) whose flow changes every twenty-four hours, etc.

- c) Thus when the human experiences the phenomenon of time, his mind is actually just measuring the number of fluctuations (e.g., ticks in his internal clock) of some sensory phenomenon.
- d) It is provable that the human mind/body is a discontinuous (this is a simple mathematical term which is opposed to continuous) instrument which calculates and recalculates its current state at a fixed interval. [Those that are highly learned in both the fields of computer engineering and modern neurology will agree with this as the human mind sends electrical impulses to its neurons which after gaining enough information reconstructs / refreshes its present state similar to how a finite state machine, such as a computer works]. This is why if a phenomenon happens too quick, the mind will not perceive it.
- e) If the human mind is discontinuous, it cannot be easily proven that the physical world (which consists of space reconstructed through time) is continuous. [As a side note, another proof that the world may not be continuous is the Uncertainty Principle in Physics which states that we cannot accurately describe both the location and time of a particle due the delays in receiving the information of its location at a particular time.]
- f) Rather, we would state that it is provable that the physical world (in both space and time) is not continuous (contrary to current and past popular belief).
- g) If we move a body from point A to point B (and there is one meter between point A and point B), we can count a great number of states of motion, but cannot count an infinite number of states of motion (again due to the delays in receiving the information about the body's movements). Thus, we cannot prove that the body actually went through an infinite number of states.
- h) It has been proven in advanced Physics over the past 100 years that all matter is made up of distinct and finite building blocks. For example, a one foot iron rod is made up of a finite number of Fe atoms. It is not valid to state any longer that one can divide up a one foot rod an infinite number of times. Now, of course, we can go further and count the protons, neutrons, and electrons in the one foot iron rod, but we will still end up with a finite number at a particular time. Now, of course, we could go even further and count the quarks (e.g., the one's with up spin, down spin, etc.) in the iron rod, but again we in the end would end up with a finite number. It may happen that we find even smaller particles in the future which make up the smallest known particle now; but again in the end we will end up with a finite number of particles no matter how deep we go in this nested scheme.
- i) Thus, we conclude that space which is made up of matter and matter-voids is discontinuous and not continuous (again contrary to past and present popular belief). [Now, you may ask, I understand

the proof for matter being discontinuous, but what is the proof that matter-voids must also be discontinuous like matter itself. We will mention a short proof in the following points.]

j) The matter-void becomes the domain in which matter rests and we know that the space in matter-voids can only fit a finite number of pieces of matter. Therefore, we conclude that these voids must also be of finite dimensions (otherwise, they would be able to fit an infinite number of pieces of matter).

When we move a body from point A to point B as is noted in section (g), the body successively comes closer to its destination. For example, when at point A, the body is one meter away from point B. If we move it midway between point A and point B, it is now half a meter away. Therefore, we conclude that the matter void between point A and point B is divisible - as the distance remaining can be obtained by dividing the original distance by some factor (in this case '2').

k) Anything that is finite in dimensions and is divisible (unlike the smallest particle known as the "jawhar" in kalam terminology) cannot itself be continuous.

A brief proof for this is that if we state that a divisible realm of finite dimension were continuous that translates into the claim that we could break it into an infinite number of pieces and that the sum of this infinite series would total its finite dimensions. But, if we divide any finite number by infinity, we will get zero. Thus, that would mean that each of the infinite number of pieces which make up the realm of finite dimension would be of zero size. And if we sum these pieces of zero size, we will get zero whereas we already know that the finite dimension of the matter-void is greater than zero. And this leads to a contradiction which forces us to reject the proposition that a divisible realm of finite dimension could actually be continuous.

l) Now returning to our example about moving a body from point A to point B, it is obvious from our above discussion in letters (i) through (k), that the body can only have a finite number of movement states between point A and point B since the matter-void through which the body moves is discontinuous.

m) Now returning to our definition of time, if the number of states of a moving body from point A to point B is always finite, it cannot be proven that time itself is continuous as time is only measurable by the movement/fluctuation of finite sensory phenomena.

n) Rather, we would state that it is provable that time is discontinuous (again contradictory to past and present popular belief). Time here is analogous to the matter-void in proof (k) and the events which take place at a particular instance in time are analogous to the contained matter in proof (i). If time were continuous, then that would force us to claim that we could divide a fixed time interval an infinite number of times. But again, each time piece would be of

zero length and all of them together would sum to zero. But, we know from (l) above that since a body moving from point A to point B requires a fixed time interval to be at each location between the two points, time intervals are of sizes greater than zero.

And again this would lead to a contradiction forcing us to reject the proposition that time could actually be continuous.

o) Next, we would state that it is provable that time (as conceived by ancient and modern man) does not in actuality exist. And what it really is - is an imaginative metaphor created in the human mind to explain the differences in states which the human being experiences at disparate intervals. And the only metaphor of time which conforms to reality (as summarized above) is that of linear (non-circular but not necessarily non-multidimensional (e.g., time may branch out like a tree)) forward-progressing time.

p) Now we will go about proving the statements in letter (o).:

i) The human being can only experience one physical state at a time (please note that when we say human, here, we mean all conscious beings/things bound in time).

ii) It is only because of the human's memory that he can experience the concept of the past. This is because if the human did not have a memory, then he would only know the state which he is experiencing currently. Thus, in such a case, he would be unable to see things as progressing from his previous experiences to his current experiences.

iii) It is only because of the human's imaginative faculties that he can experience the concept of future. This is because if the human did not have the ability to imagine other than what he currently sees at present, he would be unable to expect another state in the future.

iv) If the concepts of past and future rest on the human's memory and imaginative faculties (which are internal to him), then it cannot be proven that time as conceived by the common man actually exists. Rather, we say that it is provable that time (which is considered by the common man to be a smoothly flowing domain in which events take place) in actuality does not exist.

v) As for the fact that the time is smooth and continuous, we have already disproved that in (n) above and concluded that time must be discontinuous. But, what prevents time from being a discontinuous flowing domain for events to take place in?

vi) If we state that time is a freely flowing domain, that would force us to claim that time can exist without events to hold; otherwise, it would not be freely flowing but be tied to disparate events (as explained above).

If we propose that time can exist without events to hold, then we would state that it cannot be flowing, but must be

stable.

The reason for this is that if time were independently flowing, it would mean time itself could experience change (as it will keep adding discontinuous time intervals to its length as its flow continues). And anything that can experience change needs another “time-like” dimension to quantify its change. We will call this other proposed “time-like” dimension of time “time-2”. Now the same thing would apply to “time-2” in that it could either be tied to time or be an independent flowing domain which holds time. And the same argument about the flow of time-2 would apply in that if it could exist and flow independently, then it itself would need a time-like dimension to quantify it.

If we propose that time-2 is not an independent flowing domain which holds time, but is tied to time, then that proves that time itself could not have a directional flow (as it has no independent quantifiable domain in which its directional flow can be measured (this is also because time-1 and time-2 are similar in their characteristics and purpose; thus, saying that they are fixed/tied to each other is the same as saying that only time-1 exists; but if an independent time-2 does not exist, then time-1 cannot experience flow/change)). However, if we propose that time-2 is an independent domain which can experience flow, then we would need yet another time-like dimension which we will call time-3 to quantify time-2’s change. And thus, we could continue on like this forever. If we propose at any iteration that time-x is not an independent flowing domain, then that will mean in sum total that time-1 could not experience change or flow (as each level will keep collapsing until we reach the original time-1).

And if we keep stating at each iteration that time-x is an independent flowing domain, we will end up with an infinite series which never ends. This would mean that the sum of the discontinuous time intervals of each time line at each level at any particular time (in accordance to the measurement of time-1) would neither be odd nor even (as the infinite series of time lines would lead to an infinite number of discontinuous time intervals). However, we know from the laws of mathematics and counting that all discontinuous phenomena must add up to either an odd or even number at a fixed point in time. Thus, we conclude that such an infinite series of time-lines is impossible and at least one time line at some iteration must not be independent and flowing. But as we stated before, as soon as we conclude that a higher iteration time-line is not independent and flowing, this will cause all of the levels below to collapse until we reach time-1 forcing us to accept that time-1 cannot experience change and thus cannot have a directional flow.

vii) Thus if time does not consist of an independent flow, it is

useless arguing about the direction of its progress (either forward, backward, or both forward and backward simultaneously). Rather, the concept of flow can only be understood as a metaphor for the human's previous memories and future imaginative expectations. And this metaphor can only lead one to consider time to be linear and forward-progressing as one frame is shown to the human at a time which his memory recalls.

And this proves that the view of time expressed by the mutakallimin is the only view acceptable after examining this issue in detail.

And those that hold the possibility of backward flowing or circular time have made the mistake of considering time an independently flowing domain in which events can take place or not take place.

Now we don't expect most readers of our texts to understand the above proof due to their lacking a strong background in the issues being discussed. But, the few who do will realize the shocking revelations and detrimental consequences for kufr (i.e. atheism, polytheism, agnosticism, etc.) which result from accepting the three conclusions stated above, namely:

a) Space is discontinuous

b) Time is discontinuous

c) Time, in reality, has no directional flow (but one can metaphorically understand time to be linear and forward-progressing by using human experience as a base for building this metaphor).

Some of these detrimental consequences for kufr (disbelief) are:

a) Striking a fatal blow to random causality (e.g., as expressed by the Evolutionists and Naturalists) as each disparate space-time frame has no direct link between the previous frame and the next frame shown to us.

b) Taking the argument of "things happen by themselves" away from the atheists as there is no independent flowing domain in which these things may occur by themselves. Rather, the argument points to the fact that there must be a "Master of Creation" working behind the scenes and His "super-smooth" and "super-fast" discontinuity leads the simple-minded into believing in continuity and considering things as independently existent.

c) Inducing the last death-yells (screams before death) of those who oppose the rational arguments for the Existence of a Supreme Being by taking away the possibility of backward-flowing or circular time (this strikes a direct hit against their claim that matter is eternally pre-existent).

d) Introducing a more comprehensive and direct proof for the existence of a "Master of Sensory Phenomena" which goes beyond the three proofs which Immanuel Kant claimed were the only three possible (Ontological (Necessity of Existence Proof), Cosmological (Primary Mover Proof), and Psycho-theological (Design Proof)).

e) Apprising the learned that the physical universe is nothing

more than a large multi-dimensional “TV” screen in which sensory phenomenon are “updated” at disparate intervals.

f) Causing the ground under the anthropomorphist and polytheist to open up and sway as part of the conclusion of the above argument is that all sensory phenomena have no independent existence and if the “Master of Creation” willed they would be snuffed out in the next frame without any external cause at all. And a god whose existence can be snuffed out in a single frame is no god at all.
g) etc.

Thus after examining the above, the erudite would conclude that the atheists, agnostics, polytheists, etc. are but infants of intellect who do not understand the reality of affairs - and these poor souls may end up quite miserable in the next life to add insult to injury.

- Can you explain further the logical principle “all discontinuous phenomena
- must add up to either an odd or even number at a fixed point in time” - since
- it seems that the Muslim theologians base many of their arguments on this
- principle?

This logical principle is proven as follows:

a) When we state “all discontinuous phenomena must add up to either an odd or even number at a fixed point in time”, we mean that all the instances of such phenomena (if added together) would equal a finite number and would not be infinite again **at a particular instance in time**.

b) If we state that a discontinuous phenomenon is infinite in number, that would force us to claim that it is constantly increasing (otherwise it would be finite). But since we have stopped the stopwatch (so to speak) by saying “at a particular instance in time”, there is no dimension left to measure the change of this constantly increasing phenomenon.

c) Thus, at a particular instance in time, the sum of the discontinuous phenomenon under discussion must be stable and equal a finite number. And all finite numbers are either odd or even.

[Now of course one could complicate the argument by proposing that two or more time-like dimensions exist, one which we stopped and the other which keeps going; but, this is impossible since the two time-like dimensions would be identical in their characteristics and in their measuring the same phenomenon; thus, saying there are two that oppose each other would lead to a contradiction concerning one and the same discontinuous phenomenon.]

- Can you give a refutation of the ancient Greek philosopher Epicurus’s
> (341-270 B.C.) view of the contradiction between the presence of
> evil and the presence of God? For example, some quote him to have
> said:

>

- Either God wants to abolish evil, and cannot; Or He can, but

- does not want to; Or He cannot and does not want to. If He wants
- to, but cannot, he is impotent. If He can, but does not want to,
- He is wicked. But, if God both can and wants to abolish evil,
- then how come evil is in the world?

>

- The reason I ask is that this argument is used by many atheists to
- justify their disbelief in Allah.

First of all, we would like to say that we are not very knowledgeable in the names of ancient Greek Philosophers or in knowing their teachings in entirety.

For this reason, we would not like to defame and refute this particular person since we have not studied him in detail.

Thus, we would leave his case to Allah and leave it for Him to refute or humiliate this particular person on yam al-qiyamah if in fact this person died with such incorrect beliefs and writings.

But, your question strikes at a very critical misunderstanding about the definition of a Supreme Being.

We define a Supreme Being as follows:

- a) The being has an entity that has always existed, that is formless, timeless, infinite, totally independent, and strikingly different from everything else we know.
- b) The being has attributes which issue from his entity which tell us about his perfection and superiority over us, such as power, knowledge, self-determined volition, and eternal life.
- c) The being has the ability to create contingent things or bring them out of existence according to His own volition without needing any one else.

Now, you will note above that our definition of a Supreme Being does not state that He must be benevolent to everyone in this world or in the next world.

Rather, the 'Ash'ari and Maturidi scholars state that He does **not** have to act according to the best wishes of His creation - or according to what benefits them the most - or to act in a way that increases their pleasure and reduces their pain. Ibrahim al-Laqqani says about this in al-Jawharah al-Tawhid (verse(s) 51-52):

wa qawluhum inna s-salaha wajibu
'alayhi zurun ma 'alayhi wajibu

alam yaraw 'ilamahu l-atfala

wa shibhaha fa hadhiri l-mihala (also read l-muhala and l-mahala)

And their statement that He must do good [and not create pain]

Is a blatant lie against Him. No. Such is not necessary for Him.

Didn't they see Him giving pain to small [cute little] children

And similar acts [before issuing such a statement]? So, beware of His punishment!

[Lest He give **you** pain for believing such and misleading others.]

Thus, from this we see that our perception of Allah corresponds to reality in that He creates **both** pleasure and pain and gives pleasure to a selective group and pain to a selective group according to His wisdom (hikmah), justice ('adl), and mercy (rahmah).

And these groups are of four types:

a) A group He gives pleasure to in this world whom He will give pain to in the next world (these are the arrogant disbelievers and hypocrites as is mentioned in many places in the Qur'an).

b) A group He gives pain to in this world whom He will give pleasure to in the next world (and this group mostly consists of three types of people:

i) The "weak" and "stupid" believers who if left to themselves would work towards their own ruin concerning the next life. Thus, giving them pain here is an act of mercy (rahmah).

ii) Those spiritually-advanced who themselves prefer pain in this world over pleasure as one instance of pain in this world translates into many-fold greater gifts of pleasure in the next world as is mentioned in many hadith).

iii) Those who are not responsible for their actions, such as children and animals. These, He will give pleasure to in the next world (either on yawm al-qiyamah (this is for animals who will not enter Paradise, but will be resurrected like humans and then turned to dust as has come in tafsir of ayah 81:5 of the Qur'an) or in Paradise (this is for children, those who are not fully conscious, and mentally retarded people, who will all enter Paradise as is stated in footnotes 71 and 73 of the Guiding Helper)).

Thus, pain in such a case is just a guise designed to trick the simple-minded into believing that it is undesirable, whereas it is very desirable and worth more than all the valuables in this world. With this fact in mind, one should look at the great painful trials that Allah is sending to the "weak" believers who make up 99.98% of the ummah today (who if it were not for these trials would probably never turn to Allah or would choose a lifestyle which leads to Hell)).

c) A group He gives pain to in this world whom He will give pain to **again** in the next world (these include the rampantly disobedient believers (those who do not repent, ask for forgiveness, nor feel sorry for what they are involved in) and teeter-totter "good weather friends" of faith who later turn away from guidance after having received it (perhaps to go towards a worldly gain or due to being upset for losing a worldly gain - and the Qur'an says about the

latter “khasira d-dunya wa l-akhirah. dhalika huwa l-khusranu l-mubin”
“They have lost both in this world and the next. That is the most clear of failures.” [al-Qur’an 22:11]).

d) Lastly, there is a group of people whom He gives pleasure to in this world and pleasure to **again** in the next world (and they are the humble believers and cheerful ‘arifin (the latter of whom unlike the “spiritually advanced” mentioned above in b.ii realize that pain and pleasure are arbitrary and have found more effective and constructive ways to come closer to Allah than becoming the domain for His painful hard trials and tests - as such often get in the way of their daily awrad/tasks and puts them in a situation of dependence on other people). But, both the humble believers and the cheerful ‘arifin are free of egotistical claims (e.g., “I am a good person.” Or “I am a wali (friend) of Allah” (unlike those mentioned in b.i and b.ii) and are constantly in tawbah (repentance) and istighfar (asking for forgiveness). From this, you see the falsity of many “spiritually advanced” Muslims (who call themselves Sufis or conversely Salafis/Ikhwaan) who extol themselves and their shuyukh to a level unbecoming of a humble human being (except it’s o.k. to extol oneself or one’s shuyukh as an instructive tool to set examples for students). And this explains why many “spiritually advanced” believers from the early centuries of Islam to today have had such a terrible life in this world - as they never got rid of the “I” in their talk and thinking - something Allah made them pay for in this world with pain while still guaranteeing them Paradise in the next world. All this is hinted at in disparate places in the Qur’an (e.g., [8:33] and [16:97]).

But, even this fourth group sometimes experiences pain and troubles in this world (although to a much lesser extent than groups (b) and ©) as the world by its very nature is imperfect and full of pain and troubles unlike Paradise).

Thus, you see that there is a pattern that Allah follows in giving pain or pleasure in this world and the next. However, He is not rationally obliged to follow this pattern as footnote 130 of the Explanatory Notes states.

Reference(s):

Sharh Jawharah al-Tahwid for lines 51-52 by Ibrahim al-Bayjuru
[As a side note, this is an outstanding book (if one can manage to read around the extensive “grammar talk”) as we see here the foremost authority on ‘Ash‘ari ‘aqidah in his time (i.e. Laqqani) is being commented on by the foremost authority of ‘aqidah (about 200 years later) Ibrahim al-Bayjuri.]

From Sa`id Nursi's Divine Flashes

Introduction

O man! You should be aware that there are certain phrases which are commonly used and imply unbelief. The believers also use them, but without realizing their implications. We shall explain three of the most important of them.

The First: "Causes create this."

The Second: "It forms itself; it comes into existence and later ceases to exist."

The Third: "It is natural; Nature necessitates and creates it."

Indeed, since beings exist and this cannot be denied, and since each being comes into existence in a wise and artistic fashion, and since each is not outside time but is being continuously renewed, then, O falsifier of the truth, you are bound to say either that the causes in the world create beings, for example, this animal; that is to say, it comes into existence through the coming together of causes, or that it forms itself, or that its coming

into existence is a requirement and necessary effect of Nature, or that it is created through the power of One All-Powerful and All-Glorious. Since reason can find no way apart from these four, if the first three are definitely proved to be impossible, invalid and absurd, the way of Divine Unity, which is the fourth way, will necessarily and self-evidently and without doubt or suspicion, be proved true.

- **THE FIRST WAY**

This to imagine that the formation and existence of things, creatures, occurs through the coming together of the causes in the universe. We shall mention only three of its numerous impossibilities.

First Impossibility

Imagine there is a pharmacy in which there are hundreds of jars and phials filled with quite different substances. A living potion and a living remedy are required from those medicaments. So we go to the pharmacy and see that they are to be found there in abundance, yet in great variety. We examine each of the potions and see that the ingredients have been taken in varying but precise amounts from each of the jars and phials, one ounce from this, three from that, seven from the next, and so on. If one ounce too much or too little had been taken, the potion would not have been living and would not have displayed its special quality. Next, we study the living remedy. Again, the ingredients have been taken from the jars in a particular measure so that if even the most minute amount too much or too little had been taken, the remedy would have lost its special property.

Now, although the jars number more than fifty, the ingredients have been taken from each according to measures and amounts that are all different. Is it in any way possible or probable that the phials and jars should have been knocked over by a strange coincidence or sudden gust of wind and that only the precise, though different, amounts that had been taken from each of them should have been spilt, and then arranged themselves and come together to form the remedy? Is there anything more superstitious, impossible and absurd than this? If an ass could speak, it would say: "I cannot accept this idea!", and would gallop off!

Similarly, each living being may be likened to the living potion in the comparison, and each plant to a living remedy. For they are composed of matter that has been taken in most precise measure from truly numerous and truly various substances. If these are attributed to causes and the elements and it is claimed, "Causes created these," it is unreasonable, impossible and absurd a hundred times over, just as it was to claim that the potion in the pharmacy came into existence through the phials being knocked over; by accident.

I n S h o r t : The vital substances in this vast pharmacy of the universe, which are measured on the scales of Divine Determining and Decree of the All-Wise and Pre-Eternal One, can only come into existence through a boundless wisdom, infinite

knowledge and all-encompassing will. The unfortunate person who declares that they are the work of blind, deaf and innumerable elements and causes and natures, which stream like floods; and the foolish, delirious person who claims that that wondrous remedy poured itself out when the phials were knocked over and formed itself, are certainly unreasonable and nonsensical. Indeed, such denial and unbelief is a senseless absurdity.

Second Impossibility

If everything is not attributed to the All-Powerful and All-Glorious One, Who is the Single One of Unity, but is attributed to causes, it necessitates that many of the elements and causes present in the universe intervene in the being of every animate creature. Whereas that different and mutually opposing and conflicting causes should come together of their own accord in complete order, with the finest balance and in perfect concord in the being of a tiny creature, like a fly, is such an obvious impossibility that anyone with even an iota of consciousness would say: "This is impossible; it could not be!"

The tiny body of a fly is connected with most of the elements and causes in the universe; indeed, it is a summary of them. If it is not attributed to the Pre-Eternal and All-Powerful One, it is necessary for those material causes to be themselves present in the immediate vicinity of the fly; rather, for them all to enter into its tiny body; and even for them to enter each of the cells of its eyes, which are minute samples of its body. For if a cause is of a material nature, it is necessary for it to be present in the immediate vicinity of, and inside, its effect. And this necessitates accepting that the constituents and elements of the universe are physically present inside that minute cell, a place too small even for the tip of its antenna, and that they work there in harmony like a master.

A way such as this, then, shames even the most foolish of the Sophists.

Third Impossibility

It is an established rule that, "If a being has unity, it can only have issued from a single being, from one hand." Particularly if it displays a comprehensive life within a perfect order and sensitive balance, it demonstrates self-evidently that it did not issue from numerous hands, which are the cause of conflict and confusion, but that it issued from a single hand that is All-Powerful and All-Wise. Therefore, to attribute a well-ordered and well-balanced being which has unity such as that to the jumbled hands of innumerable, lifeless, ignorant, aggressive, unconscious, chaotic, blind and deaf natural causes, the blindness and deafness of which increase with their coming together and intermingling among the ways of numberless possibilities, is as unreasonable as accepting innumerable impossibilities all at once. If we leave this impossibility aside and assume that material causes have effects, these effects can only occur through direct contact and touch. However, the contact of natural causes is with the exteriors of living beings. And yet we see that the interiors of such beings, where the hands of material causes can neither reach nor touch, are ten times more delicate, well-ordered and perfect as regards art than their exteriors. Therefore, although tiny animate creatures, on which the hands and organs of

material causes can in no way be situated, indeed they cannot touch the creatures' exteriors all at once even, are more strange and wonderful as regards their art and creation than the largest creatures, to attribute them to those lifeless, unknowing, crude, distant, vast, conflicting, deaf and blind causes can result only from a deafness and blindness compounded to the number of animate beings.

- **THE SECOND WAY**

This is expressed by the phrase "It forms itself." It too involves many impossibilities and is absurd and impossible in many aspects. We shall explain three examples of these impossibilities.

First Impossibility

O you obstinate denier! Your egotism has made you so stupid that somehow you decide to accept a hundred impossibilities all at once. For you yourself are a being and not some simple substance that is inanimate and unchanging. You are like an extremely well-ordered machine that is constantly being renewed and a wonderful palace that is undergoing continuous change. Particles are working unceasingly in your body. Your body has a connection and mutual relations with the universe, in particular with regard to sustenance and the perpetuation of the species, and the particles that work within it are careful not to spoil that relationship nor to break the connection. In this cautious manner they set about their work, as though taking the whole universe into account. Seeing your relationships within it, they take up their positions accordingly. And you benefit with your external and inner senses in accordance with the wonderful positions that they take.

If you do not accept that the particles in your body are tiny officials in motion in accordance with the law of the Pre-Eternal and All-Powerful One, or that they are an army, or the nibs of the pen of Divine Determining, with each particle as the nib of a pen, or that they are points inscribed by the pen of Power with each particle being a point, then in every particle working in your eye there would have to be an eye such as could see every limb and part of your body as well as the entire universe, with which you are connected. In addition to this, you would have to ascribe to each particle an intelligence equivalent to that of a hundred geniuses, sufficient to know and recognize all your past and your future, and your forbears and descendents, the origins of all the elements of your being, and the sources of all your sustenance.

To attribute the knowledge and consciousness of a thousand Plato's to a single particle of one such as you who does not possess even a particle's worth of intelligence in matters of this kind is a crazy superstition a thousand times over!

Second Impossibility

Your being resembles a thousand-domed wondrous palace in which the stones stand together in suspension and without support. Indeed, your being is a thousand times more wonderful than such a palace, for the palace of your being is being renewed continuously

in perfect order. Leaving aside your truly wonderful spirit, heart and other subtle faculties, each member of your body resembles a single-domed part of the palace. Like the stones of a dome, the particles stand together in perfect balance and order demonstrating the eye and the tongue, for example, each to be a wondrous building, extraordinary work of art, and miracle of power.

If these particles were not each officials dependent on the command of the master architect of the universe, then each particle would have to be both absolutely dominant over all the other particles in the body and absolutely subordinate to each of them; and both equal to each and, with regard to its dominant position, opposed; and both the origin and source of most of the attributes that pertain only to the Necessarily Existent One, and extremely restricted; and both in absolute form, and in the form of a perfectly ordered individual artefact that could only, through the mystery of unity, be the work of the Single One of Unity.

Anyone with even a particle of consciousness would understand what an obvious impossibility this is; to attribute such an artefact to those particles.

Third Impossibility

If your being is not “written” by the pen of the Pre-Eternal and All-Powerful One, Who is the Single One of Unity, and is instead “printed” by Nature and causes, there would have to be printing-blocks in Nature not only to the number of cells in your body, but to the number of their thousands of combinations, which are arranged in concentric circles. Because, for example, if this book which we hold in our hand is written, a single pen may write it relying on the knowledge of its writer. If, on the other hand, it is not written and is not attributed to its writer’s pen, and if it is said that it exists of its own accord or it is ascribed to Nature, then, as a printed book, it would be necessary for there to be a different iron pen of each letter so that it could be printed. In a printing-press there have to be pieces of type to the number of letters in the alphabet so the letters in the book come into existence by means of them; pens to the number of those letters being necessary in place of a single pen.

As may be seen, sometimes a whole page is written in a single large letter from among those letters with a small pen in fine script, in which case a thousand pens would be necessary for one letter. Rather, if it took the form of your body, with all its components one within the other in concentric circles, there would have to be printing-blocks in each circle, for each component, to the number of the combinations that they form.

Now, see, if you claim this, which involves a hundred impossibilities, to be possible, then again if they are not attributed to a single pen, for those well-ordered, artistic pieces of type, faultless printing-blocks and iron pens to be made, further pens, printing-blocks and letters to the same number as themselves would be necessary. And they too would have to have been made; and they too would have to have been well-ordered and artistically fashioned. And so on. It would carry on in succession ad infinitum.

There, you too understand! This way of thinking is such that it involves impossibilities and superstitions to the number of particles in your body. O denier of God! See this, and quit this way of misguidance!

- **THE THIRD WAY**

“Nature necessitates it; Nature makes it.” This statement contains many impossibilities. We shall mention three of them by way of examples.

First Impossibility

If the art and creativity, which are discerning and wise, to be seen in beings and particularly in animate beings are not attributed to the pen of Divine Determining and Power of the Pre-Eternal Sun, and instead are attributed to Nature and force, which are blind, deaf and unthinking, it becomes necessary that Nature either should have present in everything machines and printing-presses for their creation, or should include in everything power and wisdom enough to create and administer the universe. The reason for this is as follows:

The sun's manifestations and reflections appear in all small fragments of glass and droplets on the face of the earth. If those miniature, reflected imaginary suns are not ascribed to the sun in the sky, it is necessary to accept the external existence of an actual sun in every tiny fragment of glass smaller than a match-head, which possesses the sun's qualities and which, though small in size, bears profound meaning; and therefore to accept actual suns to the number of pieces of glass.

In exactly the same way, if beings and animate creatures are not attributed directly to the manifestation of the Pre-Eternal Sun's Names, it becomes necessary to accept that in each being, and especially animate beings, there lies a nature, a force, or quite simply a god that will sustain an infinite power and will, and knowledge and wisdom. Such an idea is the most absurd and superstitious of all the impossibilities in the universe. It demonstrates that a man who attributes the art of the Creator of the universe to imaginary, insignificant, unconscious Nature is without a doubt less conscious of the truth than an animal.

Second Impossibility

If beings, which are most well-ordered and well-measured, wise and artistically fashioned, are not ascribed to One Who is infinitely powerful and wise and instead are attributed to Nature, it becomes necessary for there to be present in every bit of soil as many factories and printing-presses as there are in Europe so that each bit of soil can be the means for the growth and formation of innumerable flowers and fruits, of which it is the place of origin and workshop. The seeds of flowers are sown in turn in a bowl of soil, which performs the duty of a flower-pot for them. An ability is apparent in the bowl of soil that will give shapes and forms which differ greatly from one another to all the flowers sown in it. If that ability is not attributed to the All-Glorious and All-Powerful

One, such a situation could not occur without there being in the bowlful of soil immaterial, different and natural machines for each flower.

This is because the matter of which seeds, like sperm and eggs for example, consist is the same. That is, they consist of an orderless, formless, paste-like mixture of oxygen, hydrogen, carbon and nitrogen. Together with this, since air, water, heat and light also are each simple, unconscious and flow against everything in floods, the fact that the all-different forms of those flowers emerge from the soil in a most well-ordered and artistic fashion self-evidently and necessarily requires that there are present in the soil in the bowl immaterial, miniature printing-presses and factories to the number of presses and factories in Europe so that they could weave this great number of living fabrics and thousands of various embroidered textiles.

Thus, you can see how far the unbelieving thought of the Naturalists has deviated from the realm of reason. And although brainless pretenders who imagine Nature to be creator claim to be “men of science and reason,” see just how distant from reason and science is their thought, so that they have taken a superstition that is in no way possible, that is impossible, as a way for themselves. See this and laugh at them!

I f y o u a s k : If such extraordinary impossibilities and insurmountable difficulties occur when beings are attributed to Nature, how are those difficulties removed when they are attributed to the Single and Eternally Besought One? And how is the difficult impossibility transformed into that easy necessity?

T h e A n s w e r : We saw in the First Impossibility that the manifestation of the sun’s reflection displays its radiance and effect through miniature imaginary suns with complete ease and lack of trouble in everything from the minutest inanimate particle to the surface of the vastest ocean. If each particle’s relationship with the sun is severed, it then becomes necessary to accept that the external existence of an actual sun could subsist, with a difficulty at the level of impossibility, in each of those minute particles.

Similarly, if each being is ascribed directly to the Single and Eternally Besought One, everything necessary for each being can be conveyed to it through a connection and manifestation with an ease and facility that is at the level of necessity. If the connection is severed and each being reverts from its position as an official to being without duties, and is left to Nature and its own devices, it then becomes necessary to suppose that, with a hundred thousand difficulties and obstacles that reach the degree of impossibility, blind Nature possesses within it a power and wisdom with which to create and administer the universe so that it might bring into existence the wonderful machine of the being of an animate creature like a fly, which is a tiny index of the universe. This is impossible not just once but thousands of times over.

I n S h o r t : Just as it is impossible and precluded for the Necessarily Existent One to have any partner or like in respect of His Essence, so too is the interference of others in His dominicality and in His creation of beings impossible and precluded.

As for the difficulties involved in the Second Impossibility, as is proved in many parts of the Risale-i Nur, if all things are attributed to the Single One of Unity, all things become as easy and trouble-free as a single thing. Whereas if they are attributed to causes and Nature, a single thing becomes as difficult as all things. This has been demonstrated with numerous, decisive proofs and a summary of one of them is as follows.

If a man is connected to a king through being a soldier or an official, by reason of the strength of that connection, he may perform duties far exceeding his own individual strength. He may, on occasion, capture another king in the name of his own king. For he himself does not carry the equipment and sources of strength necessary to carry out the duties and work he performs, nor is he compelled to do so. By reason of the connection, the king's treasures, and the army, which is behind him and is his point of support, carry his equipment and sources of strength. That is to say, the duties he performs may be as grand as the business of a king, and as tremendous as the actions of an army.

Indeed, through being an official, an ant destroyed Pharaoh's palace. Through the connection, a fly killed Nimrod off. And through the connection, the seed of a pine the size of a grain of wheat produces all the parts of a huge pine-tree.

Were the connection to be severed and the man discharged from his duties as an official, he would be compelled to carry the equipment and sources of strength necessary for his work himself. He would then only be able to perform duties in accordance with the sources of strength and ammunition that he was able to carry. Should he be required in this situation to carry out his duties with the extreme ease of the first situation, it would be necessary to load on his back the sources of an army's strength and the arsenals and munitions factories of a king. Even clowns who invent stories and superstitions to make people laugh would be ashamed at this fanciful idea.

I n S h o r t : To attribute all beings to the Necessarily Existent One is so easy as to be necessary. While to attribute their creation to Nature is so difficult as to be impossible and outside the realm of reason.

Third Impossibility

The following two comparisons, which are included in other parts of the Risale-i Nur, explain this impossibility.

A wild savage entered a palace which had been built in an empty desert, and completed and adorned with all the fruits of civilization. He cast an eye over its interior and saw thousands of well-ordered and artistically fashioned objects. Because of his boorishness and lack of intelligence, he said: "No one from outside had a hand in this, one of the objects from inside must have made this palace together with all of its contents," and started to investigate. However, whatever he looked at, even his untaught intelligence could not fathom out how it had made those things.

Later, he saw a notebook in which had been written the plan and programme of the palace's construction, an index of its contents and the rules of its administration. For sure, the notebook too, which was without hand, eye, or implement, like the rest of the objects in the palace, was completely lacking the ability to construct and decorate the palace. But, since he saw that, in comparison with all the other things, the notebook was related to the whole palace by reason of its including all its theoretical laws, he was obliged to say: "There, it is this notebook that has organized, ordered and adorned this palace, and has fashioned all these objects and set them in their places." He transformed his uncouthness into ludicrous jabber.

Thus, exactly like this comparison, a boor who subscribed to Naturalist thought, which denies God, entered the palace of the universe, which is infinitely more well-ordered, more perfect and everywhere full of miraculous instances of wisdom than the palace in the comparison. Not thinking that it was the work of art of the Necessarily Existent One, Who is outside the sphere of contingency, and shunning that idea, he saw a collection of the laws of Divine practice and an index of dominical art, which are like a slate for writing and erasing of Divine Determining in the sphere of contingency, and like a constantly changing notebook for the laws of the functioning of Divine power, and are extremely mistakenly and erroneously given the name "Nature", and he said:

"These things require a cause and nothing else appears to have the relationship with everything like this notebook has. It is true that reason will in no way accept that this unseeing, unconscious and powerless notebook could carry out this creation, which is the work of an absolute dominicality and requires infinite power. But since I do not recognize the Eternal Maker, the most plausible explanation is to say the notebook made it, and makes it, so I shall say that." To which we reply:

O you mistaken unfortunate! Your foolishness exceeds anything imaginable! Lift your head out of the swamp of Nature and look beyond yourself! See an All-Glorious Maker to Whom all beings from particles to planets testify with their different tongues and Whom they indicate with their fingers! Behold the manifestation of the Pre-Eternal Inscraper, Who fashions the palace and Who writes its programme in the notebook! Study His decree, listen to the Qur'an! Be delivered from your delirious raving!

Second Comparison: A rustic bumpkin entered the bounds of a splendid palace and saw there the uniform actions of an extremely orderly army carrying out its drill. He observed a battalion, a regiment and a division stand to attention, stand at ease and march, and open fire when commanded as though they were a single private. Since his rude, uncultured mind could not comprehend, so denied, that a commander had been given command by the country's laws and by royal decree, he imagined that the soldiers were attached to one another with strings. He thought of what wonderful string it must be, and was amazed.

Later, he continued on his way till he came upon a magnificent mosque like Aya Sophia. He entered it at the time of Friday prayer and watched the congregation of Muslims rising, bowing, prostrating and sitting at the sound of man's voice. Since he did not

understand the Shari'a, which consists of a collection of immaterial, revealed laws, nor the immaterial rules proceeding from the Lawgiver's command, he fancied the congregation to be bound to one another by physical string, and that this wonderful string had subjected them and was making them move like puppets. And, coming up with this idea, which is so ridiculous as to make the most ignorant roar with laughter, he went on his way.

Exactly like this comparison, an atheist who subscribed to materialist thought, which is denial and pure brutishness, entered the universe, which is a splendid barracks of the Monarch of Pre-Eternity and Post-Eternity for His innumerable forces, and a well-ordered mosque of that Pre-Eternal All-Worshipped One. He imagined the immaterial laws of the ordering of the universe, which proceed from the Pre-Eternal Monarch's wisdom, each to have material and physical existence; and supposed the theoretical laws of the sovereignty of dominicality, and the rules and ordinances of the Greater Shari'a, the Shari'a of Creation, which are immaterial and exist only as knowledge, each to have external, material and physical existence. But to set up in place of Divine power those laws, which proceed from the Divine attributes of knowledge and speech and only exist as knowledge, and to attribute creation to them; then to attach the name "Nature" to them, and to deem force, which is merely a manifestation of dominical power, to be an independent almighty possessor of power, is a thousand times more low-fallen ignorance than the ignorance in the comparison.

I n S h o r t : The imaginary and insubstantial thing that Naturalists call Nature, if it has an external reality, can at the very most be work of art; it cannot be the Artist. It is an embroidery, and cannot be the Embroiderer. It is a set of decrees; it cannot be the Issuer of the decrees. It is a body of the laws of creation, and cannot be the Lawgiver. It is but a created screen to the dignity of God, and cannot be the Creator. It is passive and created, and cannot be a Creative Maker. It is a law, not a power, and cannot possess power. It is the recipient, and cannot be the source.

T o C o n c l u d e : Since beings exist, and as was stated at the beginning of this treatise, reason cannot think of a way to explain the existence of beings apart from the four mentioned, three of which were each decisively proved through three clear Impossibilities to be invalid and absurd, then necessarily and self-evidently the way of Divine Unity, which is the fourth way, is proved in a conclusive manner. The fourth way, in accordance with the verse quoted at the beginning:

Is there any doubt about God, Creator of the heavens and the earth?

demonstrates clearly so that there can be no doubt or hesitation the Divinity of the Necessarily Existent One, and that all things issue directly from the hand of His power, and that the heavens and the earth are under His sway.

O you unfortunate worshipper of causes and Nature! Since the nature of each thing, like all things, is created, for it is full of art and is being constantly renewed, and, like the effect, the apparent cause of each thing is also created; and since for each thing to exist

there is need for much equipment and many tools; there must exist a Possessor of Absolute Power Who creates the nature and brings the cause into existence. And that Absolutely Powerful One is in no need of impotent intermediaries to share in His dominicality and creation. God forbid! He creates cause and effect together directly. And in order to demonstrate His wisdom and the manifestation of His Names, by establishing an apparent causal relationship and connection through order and sequence, He makes causes and Nature a veil to the hand of His power so that the apparent faults, severities and defects in things should be ascribed to them, and in this way His dignity be preserved.

Is it easier for a watch-maker to make the cog-wheels of a clock, and then arrange them and put them in order to form the clock? Or is it easier for him to make a wonderful machine in each of the cog-wheels, and then leave the making of the clock to the lifeless hands of those machines? Is that not beyond the bounds of possibility? Come on, you judge with your unfair reason, and say!

And is it easier for a scribe to collect ink, pen and paper, and then using them proceed to write out a book himself? Or is it easier for him to create in the paper, pen and ink a writing-machine that requires more art and trouble than the book, and can be used only for that book, and then say to the unconscious machine: "Come on, you write it!", and himself not interfere? Is that not a hundred times more difficult than writing it himself?

I f y o u s a y : Yes, it is a hundred times more difficult to create a machine that writes a book rather than writing it out oneself. But is it not in a way easier, because the machine is the means for producing numerous copies of the same book?

T h e A n s w e r : Through His limitless power, the Pre-Eternal Inscraper continuously renews the infinite manifestations of His Names so as to display them in ever-differing ways. And through this constant renewal, He creates the identities and special features in things in such a manner that no missive of the Eternally Besought One or dominical book can be the same as any other book. In any case, each will have different features in order to express different meanings.

If you have eyes, look at the human face: you will see that from the time of Adam until today, indeed, until post-eternity, together with the conformity of their essential organs, each face has a distinguishing mark in relation to all the other faces; this is a definite fact. Therefore, each face may be thought of as a different book. Only, for the artwork to be set out, different writing-sets, arrangements, and compositions are required. And in order to both collect and situate the materials, and to include everything necessary for the existence of each, a completely different workshop will be required.

Now, knowing it to be impossible, we thought of Nature as a printing-press. But apart from the composition and printing, which concern the printing-press, that is, setting up the type in a specific order, the substances that form an animate being's body, the creation of which is a hundred times more difficult than that of the composition and ordering, must be created in specific proportions and particular order, brought from the

furthest corners of the cosmos, and placed in the hands of the printing-press. But in order to do all these things, there is still need for the power and will of the Absolutely Powerful One, Who creates the printing-press. That is to say, this hypothesis of the printing-press is a totally meaningless superstition.

Thus, like these comparisons of the clock and the book, the All-Glorious Maker, Who is powerful over all things, has created causes, and so too does He create the effects. Through His wisdom, He ties the effect to the cause. Through His will, He has determined a manifestation of the Greater Shari'a, the Shari'a of Creation, which consists of the Divine laws concerning the ordering of all motion in the universe, and determined the nature of beings, which is only to be a mirror to that manifestation in things, and to be a reflection of it. And through His power, He has created the face of that nature which has received external existence, and has created things on that nature, and has mixed them one with the other.

Is it easier to accept this fact, which is the conclusion of innumerable most rational proofs—in fact, is one not compelled to accept it?—or is it easier to get the physical beings that you call causes and Nature, which are lifeless, unconscious, created, fashioned and simple, to provide the numberless tools and equipment necessary for the existence of each thing and to carry out those matters, which are performed wisely and discerningly? Is that not utterly beyond the bounds of possibility? We leave it to you to decide, with your unreasonable mind!

The unbelieving Nature-worshipper replied: “Since you are asking me to be fair and reasonable, I have to confess that the mistaken way I have followed up to now is both a compounded impossibility, and extremely harmful and ugly. Anyone with even a grain of consciousness would understand from your analyses above that to attribute the act of creation to causes and Nature is precluded and impossible. And that to attribute all things directly to the Necessarily Existent One is imperative and necessary. I say: “ALL PRAISE BE TO GOD FOR BELIEF,’ and I believe in Him. Only, I do have one doubt:

“I believe that Almighty God is the Creator, but what harm does it do to the sovereignty of His dominicality if some minor causes have a hand in the creation of insignificant matters and thereby gain for themselves a little praise and acclaim? Does it diminish His sovereignty in some way?”

T h e A n s w e r : As we have conclusively proved in other parts of the Risale-i Nur, the mark of rulership is that it rejects interference. The most insignificant ruler or official will not tolerate the interference of his own son, even, within the sphere of his rule. The fact that, despite being Caliph, certain devout Sultans had their innocent sons murdered on the unfounded apprehension that the sons would interfere in their rule demonstrates how fundamental is this “law of the rejection of interference’ in rulership. And the “law of prevention of participation,’ which the independence intrinsic to rulership necessitates, has shown its strength in the history of mankind through extraordinary upheavals whenever there have been two governors in a town or two kings in a country.

Thus, if the sense of rulership and sovereignty, which is a mere shadow in human beings, who are impotent and in need of assistance, rejects interference to this degree, prevents the intervention of others, does not accept participation in its sovereignty, and seeks to preserve the independence of its position so jealously, then, if you can, compare this with an All-Glorious One Whose absolute sovereignty is at the degree of dominicality, Whose absolute rulership at the degree of Divinity, absolute independence at the degree of Oneness, and absolute lack of need at the degree of absolute power, and understand what a necessary requirement and inevitable necessity of that rulership is this rejection of interference, prevention of participation, and repulsion of partners.

Concerning the second part of your doubt, you said: “If some of the worship of some insignificant beings is directed towards certain causes, what deficiency does this cause to the worship of all beings, from particles to planets, which is directed towards the Necessarily Existent One, the Absolute Object of All Worship?”

T h e A n s w e r : The All-Wise Creator of the universe made the universe like a tree with conscious beings as its most perfect fruit, and among conscious beings He made man its most comprehensive fruit. And man’s most important fruit, indeed the result of his creation, the aim of his nature, and the fruit of his life are his thanks and worship. Would that Absolute Sovereign and Independent Ruler, that Single One of Unity, Who creates the universe in order to make Himself known and loved, give away to others man, the fruit of the whole universe, and man’s thanks and worship, his most elevated fruit? Totally contrary to His wisdom, would He make vain and futile the result of creation and fruit of the universe? God forbid! Would He be content to give away the worship of creatures to others in a way that would deny His wisdom and His dominicality? And although He demonstrates through His actions that He wishes to make Himself known and loved to an unlimited degree, would he cause His most perfect creatures to forget Him by handing over to causes their thanks and gratitude, love and worship, and cause them to deny the exalted purposes in the universe?

O friend who has given up the worship of Nature! Now it is for you to say! To which he replied:

“All praise be to God, these two doubts of mine have now been resolved. And your two proofs concerning Divine Unity which demonstrate that the only True Object of Worship is He, and that nothing other than He is worthy of worship are so brilliant and powerful that to deny them would require as much arrogance as to deny the sun and the day.”

Conclusion

The person who gave up atheistic Naturalism and came to believe said: “All praise be to God, I no longer have any doubts, but there are still a few questions about which I am curious.”

FIRST QUESTION

“We hear many lazy people and those who neglect the five daily prayers ask: “What need has God Almighty of our worship that in the Qur’an He severely and insistently reproves those who give up worship and threatens them with such a fearsome punishment as Hell? How is it in keeping with the style of the Qur’an, which is moderate, mild and fair, to demonstrate the ultimate severity towards an insignificant, minor fault?”

T h e A n s w e r : God Almighty has no need of your worship, nor indeed of anything else. Rather, it is you who needs to worship, for in truth you are sick. And as we have proved in many parts of the Risale-i Nur, worship is a sort of remedy for your spiritual wounds. If someone who is ill responds to a compassionate doctor who insists on his taking medicines that are beneficial for his condition by saying: “What need do you have of it that you are insisting in this way?”, you can understand how absurd it would be.

As for the severe threats and fearsome punishments in the Qur’an concerning the giving up of worship, they may be likened to a king, who, in order to protect his subject’ rights, inflicts a severe punishment on an ordinary man in accordance with the degree that his crime infringes those rights.

In the same way, the man who gives up worship and ritual prayer is violating in a significant manner the rights of beings, who are like the subjects of the Monarch of Pre-Eternity and Post-Eternity, and is in fact acting unjustly towards them. For the perfections of beings are manifested through the glorification and worship performed by that aspect of them which is directed towards their Maker. The one who abandons worship does not and cannot see this worship. Indeed, he denies it. Furthermore, beings occupy an exalted position by reason of their worship and glorification, and each is a missive of the Eternally Besought One, and a mirror to the Names of its Sustainer. Since he reduces them from their high positions and considers them to be unimportant, lifeless, aimless, and without duties, he is insulting them, and denying and transgressing their perfections.

Indeed, everyone sees the world in his own mirror. God Almighty created man as a measure and scale for the universe. And from the world He gave a particular world to each person. This world He colours for him in accordance with his sincere beliefs. For example, a despairing, lamenting, weeping person sees beings as weeping and in despair, while a cheerful, optimistic, merry person sees the universe as joyful and smiling. A reflective man given to solemn worship and glorification discovers and sees to a degree the certain, truly existent worship and glorification of beings, while a person who abandons worship through either neglect or denial sees beings in a manner totally contrary and opposed to the reality of their perfections, thus transgressing their rights.

Furthermore, since the one who gives up prayer does not own himself, he wrongs his own soul, which is a slave of its True Owner. His Owner delivers awesome threats in order to protect His slave's rights from his evil-commanding soul. Also, since he has given up worship, which is the result of his creation and the aim of his nature, it is like an act of aggression against Divine wisdom and dominical will, and he therefore receives punishment.

I n S h o r t : The abandoner of worship both wrongs his own soul, which is the slave and totally owned property of Almighty God, and wrongs and transgresses the rights of the perfections of the universe. Certainly, just as unbelief is an insult to beings, so is the abandonment of worship a denial of the universe's perfections. And since it is an act of aggression against Divine wisdom, it is deserving of awesome threats, and severe punishment.

Thus, it is to express this deservedness and the above facts that the Qur'an of Miraculous Exposition chooses in a miraculous way that severe style, which, in complete conformity with the principles of eloquence, corresponds to the requirements of the situation.

SECOND QUESTION

The person who had given up Naturalism and come to believe next asked:

“It is indeed a vast truth that each being is dependent on Divine will and dominical power in every aspect; in all of its functions, qualities and actions. And by reason of this vastness, our narrow minds cannot comprehend it. However, the infinite abundance that we see around us, and the boundless ease in the creation and formation of things, and the infinite ease and facility in the way of unity, which was established through your proofs above, and the infinite ease that verses of the Qur'an like the following clearly demonstrate and expound,

Your creation and resurrection is as a single soul,

and,

The matter of the Hour shall be but as the twinkling of the eye, or even closer

show this mighty truth to be a matter that is most acceptable and rational. What is the wisdom and secret of this ease?”

T h e A n s w e r : This matter was elucidated in a most clear, decisive and convincing fashion in the explanation of,

And He is powerful over all things,

which forms the Tenth Phrase of the Twentieth Letter. In particular, it was demonstrated even more clearly in the Addendum to that Letter that when attributed to the Single

Maker, all beings become as easy as a single being. If they are not attributed to that Single One of Unity, the creation of a single creature becomes as difficult as that of all beings, and a seed as problematical as a tree. When they are ascribed to their True Maker, the universe becomes as easy and trouble-free as a tree, a tree as easy as a seed, Paradise as easy as the spring, and the spring as easy as a flower. We shall now point out briefly one or two evidences that have been explained in detail in other parts of the Risale-i Nur out of the hundreds which explain the underlying reasons for and instances of wisdom in the conspicuous, boundless abundance and profusion of beings, the ease of the great number of individuals in each species, and the fact that well-ordered, artistically fashioned and valuable beings come into existence with immense speed and ease.

For example, if the command of a hundred soldiers is given to one officer, it is a hundred times easier than if the command of one soldier is given to a hundred officers. And if to equip an army it is assigned to one headquarters, one law, one factory and the command of one king, it quite simply becomes as easy as equipping a single soldier. In the same way, if to equip one soldier it is referred to numerous headquarters, numerous factories and numerous commanders, it becomes as difficult as equipping an army. Because in order to equip a single soldier, it would require as many factories as are necessary for a whole army.

Again, since by reason of the mystery of unity, the vital necessities of a tree are provided through one root, one centre and according to one law, it produces thousands of fruits as easily as a single fruit. This is plain to see. If unity changes to multiplicity, and all the necessities vital for each fruit are provided from different places, to produce each fruit becomes as difficult as to produce the tree. And to produce a single seed, even, which is a sample and index of the tree, becomes as difficult as the tree. Because all the necessities vital for the tree's life are necessary for the seed.

Thus, there are hundreds of examples like these which show that it is easier for thousands of beings to come into existence through unity than for a single being to come into existence through multiplicity and ascribing partners to God. Since this truth has been proved with absolute certainty in other parts of the Risale-i Nur, we refer you to those and here only explain a most important reason for this ease and facility from the point of view of Divine knowledge, Divine Determining, and dominical power. It is as follows:

You are a being. If you attribute yourself to the Pre-Eternal All-Powerful One, He creates you at a command through His infinite power out of nothing in an instant, like striking a match. If you do not do this and rather attribute yourself to physical causes and nature, then since you are a well-ordered summary, fruit, and miniature index and list of the universe, in order to make you, it would be necessary to sift with a fine sieve the universe and its elements, and to gather in precise measure from all the corners of the universe the substances of which your body is composed. For physical causes only gather and join together. It is confirmed by people of reason that they cannot create out of nothing what is not present in them. Since this is the case, they would be compelled to collect together the body of a tiny animate being from every corner of the cosmos.

Now understand what ease there is in unity, Divine Unity, and what difficulties lie in misguidance and attributing partners to God!

Secondly, there is an infinite ease also with regard to Divine knowledge. It is thus: Divine Determining is an aspect of Divine knowledge; it determines a measure for each being, which is like its particular and immaterial mould. And that determined measure is like a plan or model for the existence of each thing. When Divine power creates, it does so with extreme ease on that determined measure. If the thing is not attributed to the All-Powerful One of Glory, Who possesses all-embracing, infinite and pre-eternal knowledge, as was described above, not only thousands of difficulties appear, but hundreds of impossibilities. For if it was not for the determined measure which exists in Divine knowledge, thousands of material moulds with external existences would have to be employed in the body of even a tiny animate being.

So, understand one reason for the infinite ease in unity and the endless difficulties in misguidance and ascribing partners to God. And realize what a veracious, correct, and exalted truth is stated by the verse,

The matter of the Hour shall be but as the twinkling of the eye, or even closer.

THIRD QUESTION

The former enemy and now rightly-guided friend then asked: “Philosophers, who have made many advances these days, claim that nothing is created out of nothing, and nothing is annihilated and goes to nothing; there is only composition and decomposition, and this makes the factory of the universe run. Is this correct?”

T h e A n s w e r : Since the most advanced philosophers who did not consider beings in the light of the Qur’an saw the formation and existence of beings by means of Nature and causes—in the manner proved above—to be so difficult as to be impossible, they diverged into two groups.

One group became Sophists; abdicating reason, which is exclusive to human beings, and falling lower than mindless beasts, they found it easier to deny the universe’s existence, and even their own existence, than to follow the way of misguidance, which claims that causes and Nature have the power to create. They therefore denied both themselves and the universe and descended into absolute ignorance.

The second group saw that in misguidance, according to which causes and Nature are creator, the creation of a fly or a seed, even, entails innumerable difficulties and requires a power unacceptable to reason. They were therefore compelled to deny the act of creation and to say: “Nothing can exist out of nothing.” And seeing total annihilation also to be impossible, they declared: “What exists cannot go to nothing.” They fancied an imaginary situation in which combining and decomposition, gathering and dispersion, occur through the motion of particles and the winds of chance.

Now, see! Those who consider themselves to be the most intelligent are the most profoundly ignorant and stupid. And understand just how ludicrous, debased, and ignorant misguidance makes man, and take a lesson!

Indeed, a Pre-Eternal Power created the heavens and the earth in six days, every year creates four hundred thousand species simultaneously on the face of the earth, and in six weeks every spring constructs a living world more full of art and wisdom than the world itself. Thus, it is more foolish and ignorant than the Sophists, the first group above, to deny the act of creation and deem it unlikely that, like a chemical that when applied shows up invisible writing, Pre-Eternal Power should give external existence to beings, which, though externally non-existent, exist as knowledge, and whose plans and measures are determined in the realm of a Pre-Eternal Knowledge.

These unfortunates are absolutely impotent and have nothing at their disposal apart from the faculty of will. And although they are inflated like Pharaohs, they can neither annihilate anything nor create anything from nothing, even a minute particle. And so, although nothing comes into existence out of nothing at the hand of causes and Nature on which they rely, out of their stupidity they say: “Nothing comes from non-being, and nothing goes to non-being.” And they even extend this absurd and erroneous principle to the Absolutely All-Powerful One.

Indeed, the All-Powerful One of Glory has two ways of creating:

The First is through origination and invention. That is, He brings a being into existence out of nothing, out of non-existence, and creates everything necessary for it, also out of nothing, and places those necessities in its hand.

The Second is through composition, through art. That is, He forms certain beings out of the elements of the universe in order to demonstrate subtle instances of wisdom, like displaying the perfections of His wisdom and the manifestations of many of His Names. Through the law of Providing, he sends particles and matter, which are dependent on His command, to these beings and employs the particles in them.

Yes, the Absolutely All-Powerful One creates in two ways: He both originates, and He composes. To annihilate what exists and to make exist what does not exist is most simple and easy for Him. It is one of His constant and universal laws. The man, therefore, who says: “He cannot give existence to what does not exist” in the face of a power that in one spring makes exist out of nothing the forms and attributes of three hundred thousand animate creatures, and, besides their particles, all their conditions and states, such a man should himself be obliterated!

The person who gave up Nature and embraced the truth said: “Praise and thanks be to God Almighty to the number of particles in existence for I have attained to complete belief. I have been saved from delusion and misguidance. Not one of my doubts remains.

“ALL PRAISE BE TO GOD FOR THE RELIGION OF ISLAM, AND COMPLETE
AND PERFECT BELIEF!”

All glory be unto You! We have no knowledge save that which You have taught us;
indeed, You are All-Knowing, All-Wise.

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